Working Capital Management and Profitability of Manufacturing Firms in GCC Countries.

إدارة رأس المال العامل و ربحية الشركات الصناعية في دول مجلس التعاون الخليجي.

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BY

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Dedication

To my mother,

There is no language can express your strength, warm heartedness, and majesty. Thanks for your faith in me, your prayers were my power and they will always be.

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Abstract

Working Capital Management and Profitability of Manufacturing Firms in GCC Countries

By

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This study aims to investigate the relationship between management of the working capital and the profitability of (74) manufacturing firms listed on six stock exchanges of cooperation council for the Arab states of the gulf over the period of (2007 to 2012). Two measures are used for determining profitability. The first one is named "return on assets", while the other one is named "growth operating income".

Within the same context, both cash conversion cycle and its components (average age of inventory, average collection period, average payment period) are used as indicators to determine the working capital management efficiency.

Descriptive analysis, correlation analysis and panel of multiple least square regression methods were used to achieve the objective of the study. The results indicated that GCC manufacturing firms recorded a cash conversion cycle with an average of (75.54) days, while the longest cash conversion cycle was given in Basic Material industrial sector with

an average of (100.16) days, and the shortest cash conversion cycle was given in food industrial sector with an average of (56.96) days. Furthermore the results showed that there is a significant positive relationship between working capital management and the firm profitability calculated by the growth operating income of such firms, on the other hand there is no statistical significance correlation between the cash conversion cycle and its components in side and the profitability calculated by return on assets on the other side.

The study recommends that managers of GCC manufacturing firms should be more concerned about their firm's liquidity, and due to the positive relationship between the average payment period and the profitability calculated using growth operating income, managers of GCC manufacturing firms should keep in mind that lengthening the average payment period might harm the profitability of their firms in the long-run.

Key Words: Working Capital Management, Cash Conversion Cycle, Profitability, GCC Manufacturing Firms.

Chapter one

General Overview

1.1 Introduction

Industrial sector is important to national economies because it is considered one of the major sources of employment opportunities and it fosters economic growth. So this sector requires in depth analysis of the industry.

The highly focus on the working capital management in recent years is considered a significant and important development in the field of financial management.

The working capital management is mainly concerned with the elements of the current assets and current liability. Also, working capital management concerns with the determination of the suitable levels of the current assets and their uses, as well as, selecting the suitable sources of financing, (Chowdhury & Amin, 2007). In addition to that, it plays an important role in the success and failure of the firm, because of the direct influence on its profitability and liquidity (Dong & Su, 2010); therefore, management of working capital means management of current assets and current liabilities (Garcia-Teruel, Martines-Solano, 2007).

The main purpose of all firms' strategies is to attain optimum trade-off between their firms' liquidity and profitability. This is related to risk and return trade-off, more risky investment will provide more return, thus firms with high liquidity of working capital have less risk and there will be low profitability gained by such strategy. on the contrary with a firm that has low liquidity of working capital facing high risk but enjoys high profitability (Zariyawatiet al, 2009). Therefore, the strategy of the firm

regarding the management of its working capital should be concerned about attaining the balance between profitability and liquidity (Raheman & Nasr, 2007). The efficiency of working capital management will allow firms to achieve the highest level of the cash inflows and to reduce the cash outflows. This leads to firm reduction of its demands to securing external financing options in turn, and maximizing the value of the firm's stocks as well (Charitou et al, 2010), in addition to that, efficiency of working capital management keeps the firm on an adequate level of the liquidity for performing the operating processes on an readily way (Singh, 2011).

According to (Deloof, 2003, p.578) "the way in which working capital is managed can have a significant impact on both profitability and liquidity of the firm".

Managing the working capital in a wrong manner doesn't only lead to reducing the profit, but also leads to financial crises as well. Furthermore, one of the most important examples resembling this case is what happened in the last credit crisis in the United State of America, where the biggest three American firms for producing cars found themselves bankrupt due to the scarcity of liquidity which led to trust crisis and exacerbated the liquidity crisis in turn, where they didn't have enough money for facing the daily expenses. The American government asked for direct aids to finance its daily requirements with about 13.4 billion to solve its crisis (USA, TODAY, 2008).

Depending on the analysis and facts given above arguably one come to conclusion that firms should sustain permanent dynamic plans and supervise the working capital to keep its financial stability.

The cash conversion cycle is considered one of the best modern scales to measure the efficiency of the working capital management (Lazaridis &Tryfonidis, 2006). This cycle measures the average number of days required for the cash to complete its journey between the external cash flow that are related to purchasing the inputs, and the internal cash flow that are related to the sale of commodities and services.

The cash conversion cycle helps financial managers to estimate when and how much the firm needs cash to maintain its activities, and when it has to be able to fill its dues.

The importance of working capital management motivated researchers to examine and focus on evaluating the relationship between working capital management and the performance of firms in many countries through many studies such as (Uyar, 2009; Dong and Su, 2011 and Deloof, 2003). The lack of studies and researches concerned with this topic in GCC countries led the researcher to raise this topic through studies that work within the theoretical part of introducing the most important components of the working capital management, furthermore a practical part, in which the study sought for discovering the relationship between the cash conversion cycle, that is used as a measure for the working capital management efficiency and profitability of the GCC manufacturing firms.

1.2-The Problem of the Study:

This study is concerned with understanding the interrelation between the effects of the cash conversion cycle and firm profitability.

The problem of the study can be expressed through the following questions:

1- What is the relationship between the cash conversion cycle and the profitability of the GCC manufacturing firms?

2- What is the relationship between the cash conversion cycle components (average age inventory - average collection period - average payment period) and the profitability of the GCC manufacturing firms?

1.3 Objective of the Study:

In the light of the pre-mentioned questions the specific objectives of the study are summarized as follows:

-Examining whether working capital management has an impact on profitability of manufacturing firms in GCC countries.

-Examining whether there is a significant relationship between Profitability and different components of working capital management (average age inventory - average collection period - average payment period) in GCC manufacturing firms.

1.4 The Importance of the Study:

1- The importance of the study rose due to the importance of the subject, where the working capital management is considered one of the most important challenges that firms face, to achieve acceptable level of profitability and maintain an adequate level of liquidity to finance their working processes.

2-The lack of studies on the working capital management and its impact on the performance of the firms in case of manufacturing sector in GCC countries.

This study will contribute to the body of knowledge by identifying and offering alternatives to GCC manufacturing firms regarding management of their working capital. Additionally, the result of this study would provide better insights on how to create efficient working capital management strategies that might lead to maximization of firm's stock value.

1.5 The Hypotheses of the Study:

To provide the right answer about the questions above, the following null hypotheses are formulated:

H1: There is no significant relationship between cash conversion cycle and the profitability of the manufacturing firms in GCC countries.

H2: There is no significant relationship between the cash conversion cycle component and profitability of the manufacturing firms in GCC countries

H2a: There is no significant relationship between average age of inventory and the profitability of the manufacturing firms in GCC countries.

H2b: There is no significant relationship between average collection period and the profitability of the manufacturing firms in GCC countries.

H2c: There is no significant relationship between average payment period and the profitability of the manufacturing firms in GCC countries.

1.6 Structure of the Study:

The study is organized as follows: chapter two provides the theoretical background. Chapter three reviews the major empirical studies conducted about the topic. Chapter four presents the methodology and data analysis. Chapter five discusses the results of the analysis and provides recommendation.

Chapter Two

Theoretical Background

2.1 Introduction

Working capital management is an important aspect in business firms, and this importance comes due to the large number of financial decisions that concentrate on the short term operating cycles of firms.

This chapter provides a discussion of the definition of working capital, the importance of managing it in business firms, the different working capital strategies and policies and finally the concept of working capital cycles.

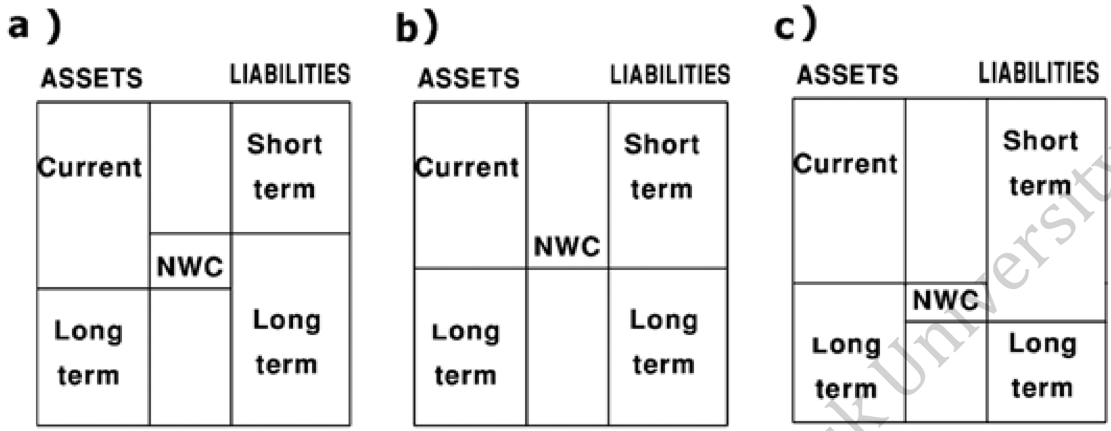
2.2 Nature of Working Capital

According to Bhattacharya (2006), the concept of working capital was probably first introduced by Karl Marx, but in a little different form, and the expression he used was "variable capital". Guthmann and Dougall (1948) define working capital as current assets minus current liabilities referred to the net working capital. On the other hand, the gross working capital consists of the total fund invested in current assets which is used in firm's operations at any point of time within one year; however, this definition ignores the current liability unlike the previous definition.

The current assets can be divided to four primary components cash and cash equivalents; marketable securities; accounts receivable; and inventory.

As we see in figure (2.1) net working capital value could be positive or negative (Meszek & Polweski, 2006). Positive net working capital represents the part of the invested current assets that is financed from a long term source of fund. While negative net working capital represents the part of fixed assets that financed from current liabilities.

Figure (2.1)
Net working capital levels, a) positive b) zero c) negative.



Source: (Meszek & Polweski, 2006)

The first definition of working capital (net working capital) is used to assess the availability of firm's liquidity whereas the concept of growth working capital is useful to determine the size of investment in current assets (Kumar, 2001).

2.2.1 Permanent Working Capital versus Temporary Working Capital

The requirement of working capital can be divided into two kinds the permanent and the temporary working capital.

Permanent working capital is the minimum investment in current assets that a firms uses at any point of time to serve the minimum firm operation, or it is the fixed amount of working capital investment in current assets regardless of sales fluctuation (Crum & Goldberg, 1998).

It could be noticed that there are different amounts of permanent working capital according to the different growth stages of the project, in a pursuit to catch more clients in the first few years of the project's life in

order to save more liquidity, which makes permanent working capital large at this project stage.

The temporary working capital is the additional assets investment required to meet sales fluctuation, or it is the level of current assets that fluctuate with seasonal sales variations (Crum & Goldberg, 1998). The firm must be ready at any time of the project life to supply the requirements of the temporary and permanent working capitals (Siddiqui, 2006).

2.2.2 Management of Working Capital

No firm can survive without efficient management in its working business. The basic objective of working capital management is to manage firm's current assets and current liabilities (khan and Jain, 2008); hence profitability and liquidity are the most imperative issues which need to be balanced together at the same time.

The main goal of managing working capital is to maintain an appropriate level of current assets and current liability to achieve the balance between profitability in one hand and liquidity on the other (Gill, 2011).

The liquidity target means the ability of the firm to meet short term obligations; to avoid the risk of failure, but excess liquidity results due to extra asset which does not achieve any excess profit, as a result the total profit of the firm might decrease, and in this situation profitability is affected negatively. On the other hand, profitability is important to insure continuous growth of the firm, whereas failure to achieve profits will hurt the firm's reputation and increasing the threat of exiting the market, therefore increasing the firm's profitability requires more investment in

less liquid assets and making the firm vulnerable to face the problem of insolvency or bankruptcy.

Those two financial goals profitability and liquidity are conflicting nature, so achieving one of them might be at the expense of the other (Gitman, 2009). Some researchers see liquidity as more important than profitability because firms with low or zero profitability can serve the economy better than firms without liquidity (Eljelly, 2004).

2.2.3 The Importance of Managing Working Capital

There are a lot of reasons that make working capital management important to the manager:

- Studies indicate that financial managers spend long time on daily internal operations (Rahaman and Nasr, 2007).
- An important part of a firm capital structure includes investing in current assets, and it may reach 40% in industrial firms. Current asset ratio increases in small firms and in firms that have greater growth ratio (Drums and Wright, 2010).
- The investment decision in working capital is always being taken repeatedly, unlike the capital structure and dividend policies design.
- Working capital management affects the profitability and liquidity so each manager is required to have a tradeoff between the two essentials of a firm's life (Raheman and Nasr, 2007).
- The components of working capital rapidly change as a result of the change of level of firm's sales, making the management of those component changes in the same line (Al-Debi'e, 2011).

2.3 Working Capital Strategies and Policies

The strategies and policies of working capital depend on two main aspects, the optimal level of investing in current assets and how we finance it (Correia et al, 2007).

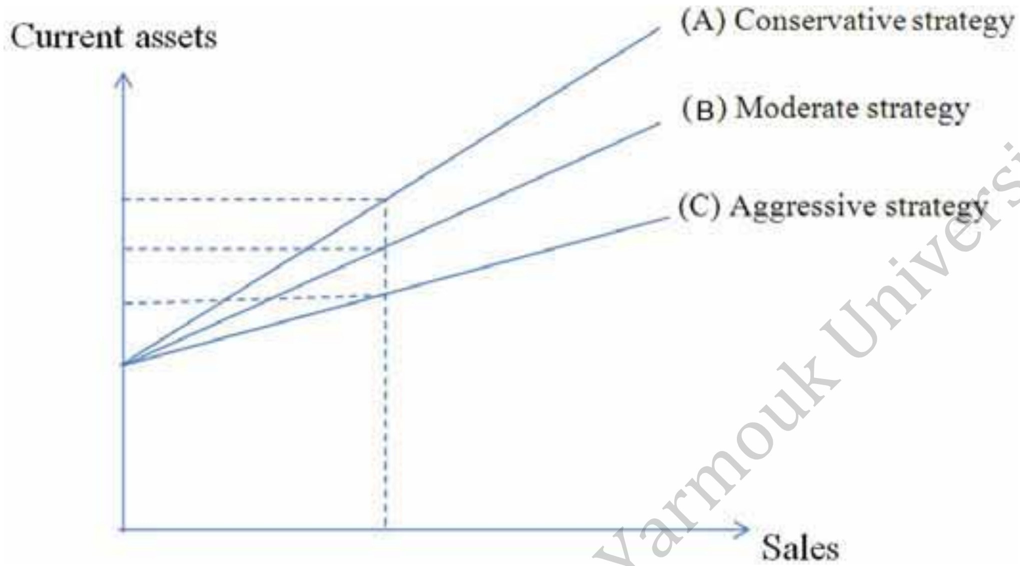
Working capital strategies and policies in a business firm must achieve three main goals, to maintain an acceptable level of liquidity; to reduce the risk and maximizing the value of the firm (Hampton, 1989).

2.3.1 Working Capital Investing Strategies

According to Meszek & Polweski (2006), the literature of finance classifies strategies of investing in current assets into three categories, aggressive; moderate and conservative strategies. Depending on how much is invested in current assets to support any level of sales (Besley & Brigham, 2008). As seen in figure (2.2), line (a) represents a conservative strategy that is when a firm maintain a high level of current assets, whereas line (c) represent aggressive strategy when firm relatively maintain low level of current assets, line (b) represent the moderate strategy, the medial between conservative and aggressive strategies.

Figure (2.2)

Working Capital Investing Strategies



Source: (Besley & Brigham, 2008)

In case of a certain conditions, firms tend to adopt aggressive investing strategy.

Arguably, any increase in current assets well increase the relaying on external source of fund without similar increase in profit (Brigham & Daves, 2010). However because of uncertain conditions (risk) firms apply conservative investing strategy to face any type of unexpected risk. Aggressive strategy on the other hand provide higher profit but leave the firm under the threat of greater risk, because of lower levels in net working capital (decrease in current asset). The opposite is true in conservative strategy. Moderate strategy represents a middle situation between aggressive and conservative.

The above mentioned investing strategies of the Working capital can be measured by using two ratios (Meszek&Polweski, 2006):

Liability strategy (LS) is defined as:

$$LS = \frac{SL}{TA} \qquad (1)$$

Where SL=short-term liabilities (current liabilities) and TA=total assets.

Assets strategy (AS) is defined as:

$$AS = \frac{CA}{TA} \qquad (2)$$

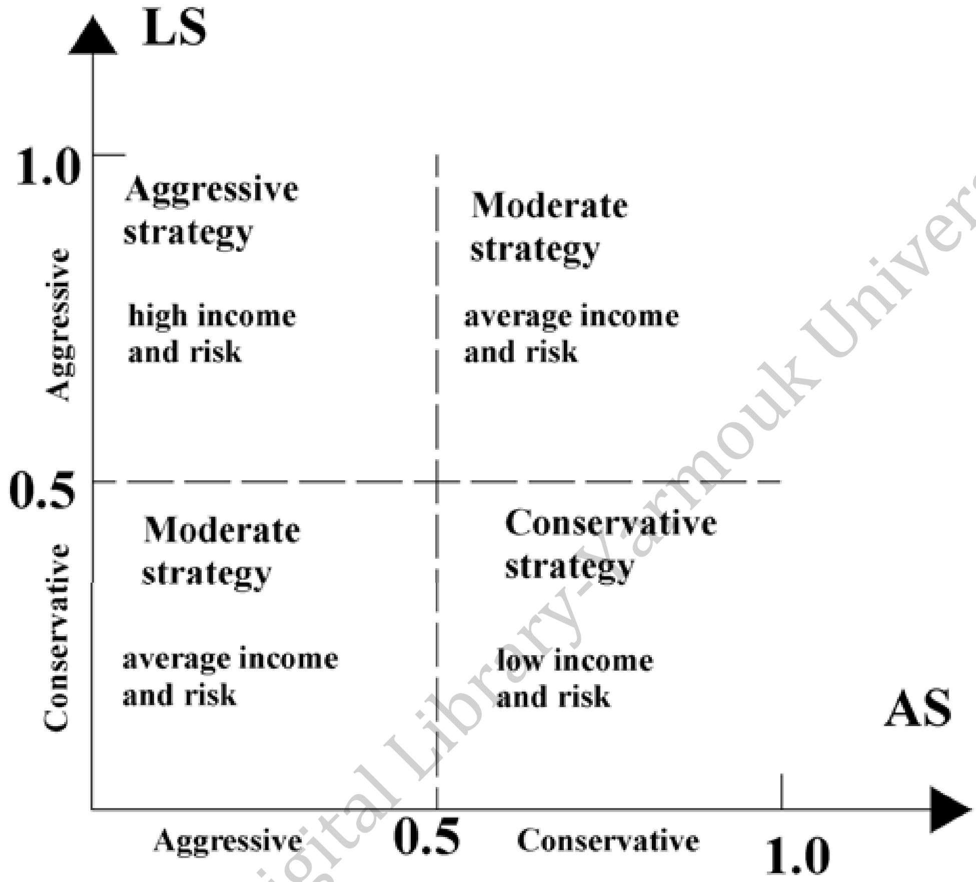
Where CA=current assets.

When combining assets strategy (1) and liability strategy (2) net working capital investing strategy could be formed as seen in figure (2.3).

The aggressive strategy required maintaining a high short term liabilities level and a low level of current assets compared to the total assets, this will results in high level of income but high risks. The conservative strategy is the opposite; it is maintaining a low level of short term liabilities and a high level of current assets relative to total assets. The moderate strategy is between these strategies that adopt a moderate level.

Figure (2.3)

Net Working Capital Management Strategies



Source: (Meszek&Polweski, 2006)

2.3.2 Working Capital Financing Policy

The trade-off between risk and return which occurs during making investing strategy decisions which are concerned with the level of investment in current assets is also significant to the policy decision that refers to relative amounts of finance in current assets i.e. the choice between short- term and long-term funds to finance current assets (Droms and wright, 2010). Short-term finance like short term loans from financial institutions, cash credit and commercial papers. Long-term finance can broadly divided into (1) Internal sources include reserves and returned earning, (2) External sources include long-term loan from banks or financial institutions, Debentures (Khan and Jain, 2008).

Each of those sources has both advantages and disadvantages, so each firm must decide which sources are best for it.

The optimal mix of short-term, long-term financing composition differs among firms because it is related to the strategy of each firm, cash flow and degree of risk tolerance that the financial firm can accept (Moyer et al, 2009).

Generally shot-term financing is considered less costly and more flexible but it's considered more risky than long-term for the two following Reasons (Droms & wright, 2010):

1- The inability to predict accurate interest rate on short-term financing instrument.
2- The inability of the firms to renew the short-term loan at the maturity.

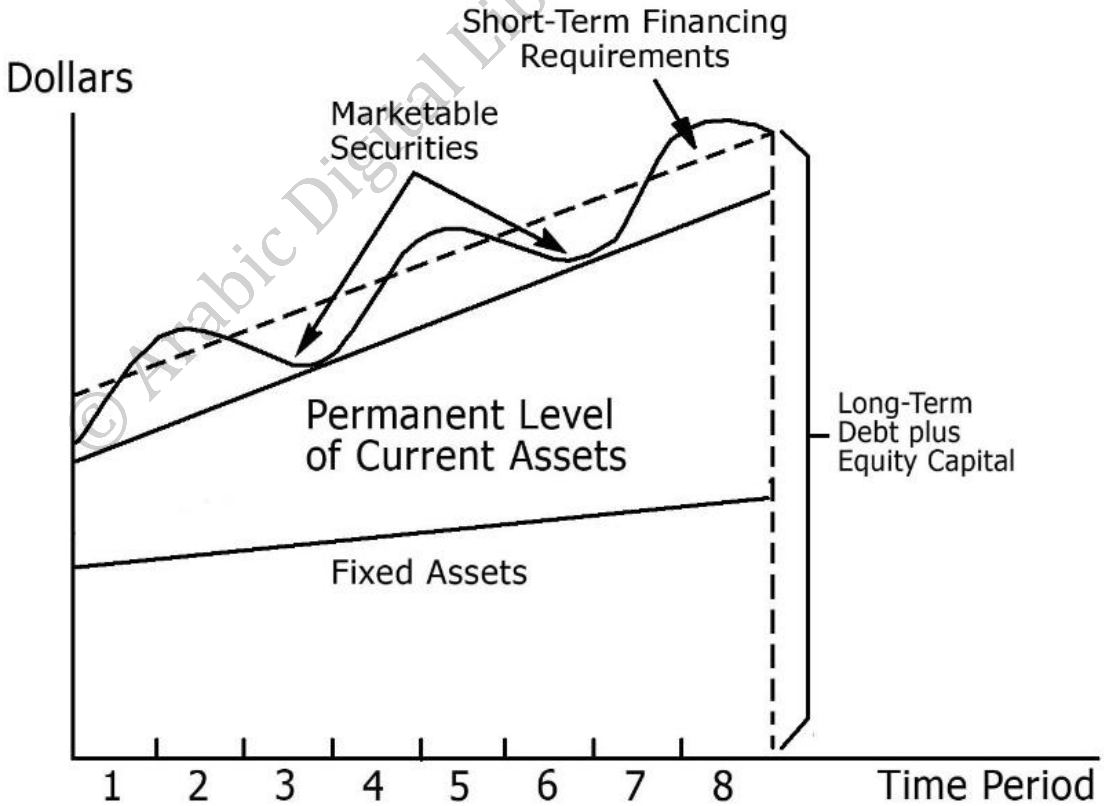
It is not possible to state that long-term or short-term Financing is better than the other. The firm's specific conditions will affect the Choice between long term and short term source of fund, as well the preferences of managers (Brigham &Houston, 2011). Optimistic or aggressive managers might probably lean more toward short-term credit to gain an interest cost advantage, while more conservative managers might lean toward long-term financing to avoid potential renewal problems ," so the factors discussed here should be taken into consideration, but the final decision will reflect managers personal preferences and judgments" (Brigham &Houston, 2011, p.487).

There are three main polices to choose the optimal composition for financing the working capital: conservative police; aggressive police; Moderate police.

A. Conservative police:

According to this policy long-term capital is used to finance all the fixed assets (permanent current assets) and to meet some of the seasonal needs. Therefore, the firms rely on a small amount of short-term credit to meet its peak requirements, but it also meets part of its seasonal needs by investing in marketable securities (Moyer et al.2009). This policy is very safe but it reduces profitability. Figure (2.4)

Figure (2.4)
Conservative police

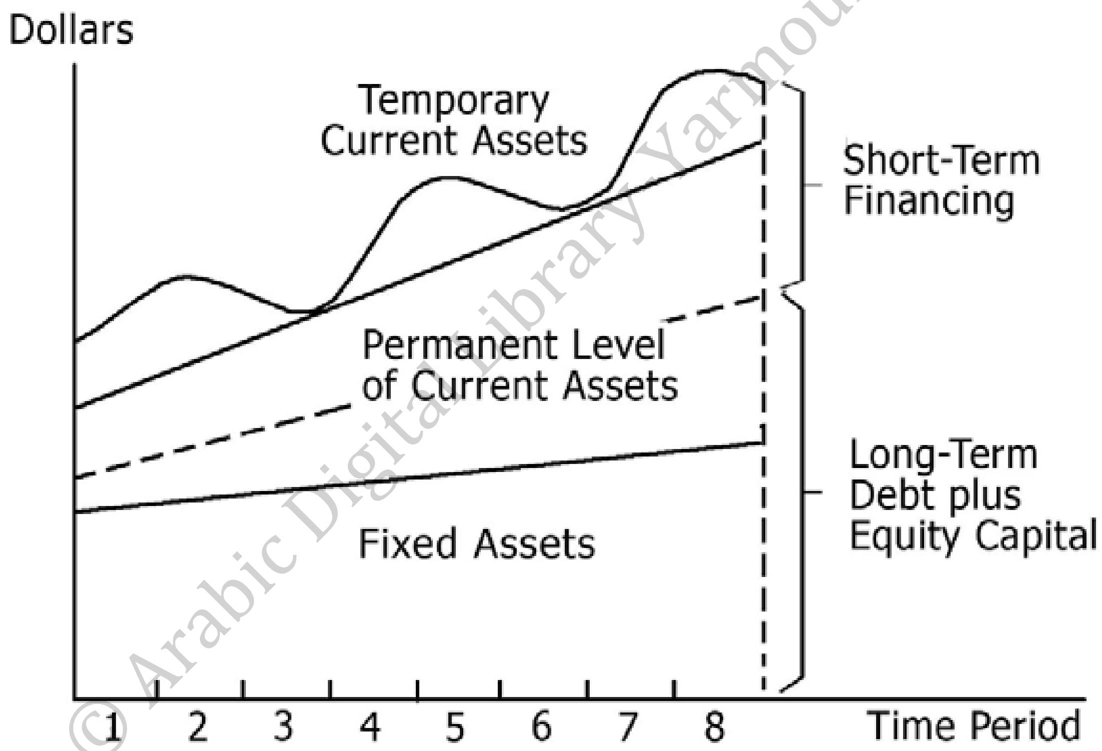


Source: (Moyer et al.2009)

B. Aggressive police

The policy uses short-term funds to finance not only temporary current assets, but some permanent current assets as well. The remaining part of permanent current assets and temporary current assets are financed by long-term financing. This policy although poses the greatest risk to solvency, but offers the higher profitability. Figure (2.5)

Figure (2.5)
Aggressive police

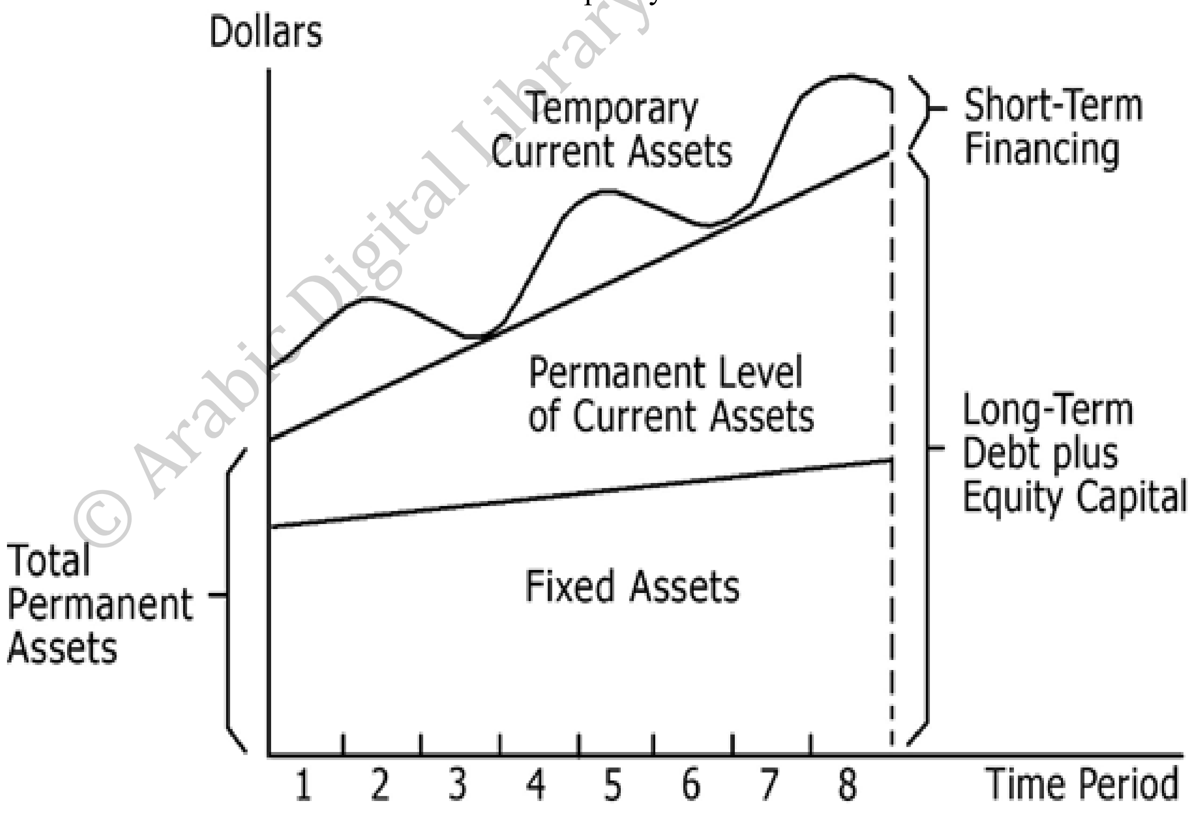


Source: (Moyer et al.2009)

C. Moderate policy:

According to this policy, firms finance fixed assets and permanent current assets with long-term debt plus equity, and temporary current assets are financed with short-term debt. Hence firms achieve matching asset and liability maturities, Figure (2.6). But there are two factors prevent an exact maturity matching (Besley &Brigham, 2008, P.492), "(1) there is uncertainty about the lives of assets. (2) Some common equity must be used in financing, and common equity has No maturity". This financing policy is Moderate between aggressive and conservative policies.

Figure (2.6)
Moderate policy



Source: (Moyer et al.2009)

Summary of the Three Working Capital Financing Policies

The following table (2.1) provides a summary of the three financing policies.

Table (2.1)

	Conservative policy	Moderate policy	Aggressive policy
Long term finance	Non current assets Permanent assets Temporary current assets	Non current assets Permanent assets	Non current assets Permanent assets
Short term finance	Temporary current assets	Temporary current assets	Permanent assets Temporary current assets

Source: Prepared by the researcher

2.4 Determinants of Working Capital

Requirements of working capital depend upon various factors some of them are internal (related to the characteristics of the firms itself) and the other are external (related to the economic condition the firms operating in). Following are the factors which affect the working capital requirement of a firm.

1. Size of Business:

Working capital requirement of a firm is directly influenced by the size; big business organizations require more working capital than the small business organization (Banerjee, 2010).

2. Type of BusinessActivity:

Working capital requirement depends upon the nature of business activity by the firm. commercial and industrial firms have along operating cycle compered to services firms, therefore more working capital is needed (Banerjee, 2010).

3. Conditions of Supply:

If the supply is provided on time and adequate, the firm can manage with small inventory. However, if the supply is unpredictable, the firm needs to hold larger amount of inventory to ensure continuity of production, causes in the other hand more need in working capital.

4. Seasonality:

In sum business, raw material is not available throughout the year. Such business organizations have to buy raw material in large amount during the season to ensure an unpredicted flow, and process them during the entire year. Thus, a huge amount is tied up in the form of raw material inventories which lead to an increase in working capital requirement (Nwankwo and Osho, 2010).

5. Credit Period:

Credit policy of the firm affects the working capital by influencing the level of debtor account. Longer credit period requires more investment in debtors and hence more working capital is needed. But, the firm which allows less credit period to customers, needs less working capital (Banerjee, 2010).

6. Manufacturing cycle:

When the manufacturing cycle of a firm is long, it will require larger amount of working capital. But, if manufacturing cycle is short, it will need less working capital (siddiqui, 2006).

7. Credit facilities:

If it's easily for the firm to get credit facility when it's needed, this will less working capital. But if the credit facility is not available, firm must have more working capital requirement (Hampton, 1989).

8. Changes in Price Level:

Working capital requirements is affected by changing in price level, the rise in price will require the firm to maintain large amount of working capital as more funds will be required to maintain the sale level of current assets, this factor has a different effect according to size and nature of the firms (khan & Jain, 2008).

2.5 Working Capital Cycles

2.5.1. Operating Cycle:

It is well known that firms cannot convert the sales into cash immediately, there is a period of time between the cash spending on raw materials and cash inflow from the sale of finished goods, this period is referred to as operating cycle (Periasamy, 2009). Or the lengths of time from purchasing raw material, converting it and selling it to receive payment for sales (Nobanee, 2009).

This length of time is calculated by adding the age of inventory (the number of days that inventory is held prior to sale) with the collection period (the number of days required to collect receivables).

Operating cycle = Inventory period + Accounts receivable period

Three main activities constitute the operating cycle:

1- Purchase of raw material form creditor on account providing account payables.

2- Processing to turn raw material into finished goods (in case of manufacturing firm).

3-Selling the good but on account providing account receivables.

Operating cycles make current assets the only important part in operating by ignoring current liability. And this is not true because current assets in particular account payables represent main source of fund for the firm activity (Fulop and Ajilore, 2009). From this perspective Richards and Laughlin (1980) propose cash conversion cycle that taking into consideration all of the operational related cash flow to tack the most appropriate alternative for operating cycle.

2.5.2 Cash Conversion Cycles:

In management accounting, the cash conversion cycle (CCC) measures how long a firm will be deprived of cash if it increases its investment in resources in order to expand customer sales.

Many financial researchers defined the cash conversion cycle, Bodie and Merton (2000, p.89) "defined cash cycle as the number of days between cash disbursement and cash collection". Eljelly (2004, p.50) defined it as the "number of days between the Outlay of cash on raw materials and the inflow of cash from the sales of finished Goods".

Stewart (1995) define cash conversion cycle as a composite metric describing the average days required to turn a dollar invested in raw materials into a dollar collected from a customer. Besley and Brigham (2011, p.102) describes cash conversion cycle as “the Length of time

from the payment for the purchase of raw materials to manufacture a product until the collection of account receivable associated with the sale of the product". Finally Keown et al (2003, p.109) defined Cash conversion cycles "as the sum of days of sales outstanding (average collection period) and days of sales in inventory less days of payables outstanding".

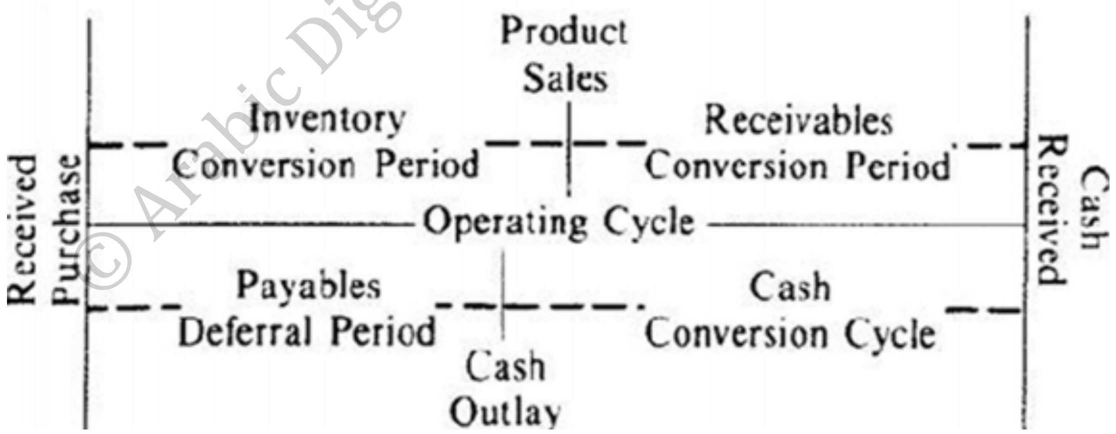
The cash conversion cycle length of days that illustrated between paying for working capital and collecting cash from the sale of the working capital can be simply calculated as follows:

Cash conversion cycle = receivables conversion period +inventory conversion period – payables deferral period

OR

Cash conversion cycle = Operating cycle - payables deferral period

Figure (2.7)
Cash conversion cycle VS Operating cycle



Source: Richards & Laughlin, (1980)

The above figure (2.7) illustrates that the cash conversion cycle days are calculated by taking into account three main components:

Receivables conversion period; payables deferral period; and Inventory conversion period.

- **Receivables Conversion Period:** it provide a measure of the average number of days it takes for the company to collect revenue from its credit sales or the average time taken by firm to convert account receivables to cash. and it's using the equation:

  (Account receivable / sales) *365

- **Inventory Conversion Period:** or average age of inventory is the average time the company takes to use up raw materials, plus the average time needed to convert raw materials into finished goods, plus the average time taken to sell finished goods to customers. Calculated by the Equation:

  (Inventory / cost of goods sold)*365

- **Payables Deferral Period:** is the average time between purchase of goods; raw material and the payments for them, and it's also could average payment period. calculated by the Equation:

  (Account payable / cost of goods sold)* 365

It's important to indicate that cash conversion cycle could be positive or negative, Positive cash conversion cycles occur when the time of holding an inventory and accounts receivable is greater than the time it takes to pay the supplier, hence it is the length of time to finance the firms operations from loans or other sources of funding while waiting for the customer payments. On the other hand negative CCC indicates the number of days that a firm Receives cash payment for goods from customer before that firm actually pays for it to its suppliers (Hutchison et al, 2007). Which means that working capital provides cash and the firm does not use it.

Actually manufacturing firms do not obtain negative CCC unlike the non-manufacturing firms that obtain shorter inventory periods (Stoltz,2007), and often those non-manufacturing firms sell its goods in cash causing firm's operating cycle to be shorter than the payable period.

As a stand-alone number, CCC highlights the strengths and weaknesses of the firm's working capital policy. And It should be used to know length of time the firm's funds frozen in form of inventory and account receivable, this length of time is very important because it's the time firm is in need to borrow extra fund for financing its operations.

Firms with large positive number of CCC have to borrow for a long time to serve their needs, firm with low positive number of CCC use short term borrowing or internal sours of fund to serve their needs (Stoltz, 2007). The CCC length of time determined the external sources of fund firm must depend on (Soenen, 1993).

2.5.3 The Management of Cash Conversion Cycle

Managing the CCC by firms directly affected by two main managerial goals profitability and liquidity. large number of day for CCC aren't necessarily a good sign, however low number which indicate aggressive investment strategy in working capital refer to a more effectively managed working capital, which means that firms doesn't need to hold too much inventory (have a minimum level of account receivable and inventory), Which led to lower costs incurred in managing inventory; account receivables, hence achieve a higher return (Ebben &Johnson, 2011). On the other hand reducing the working capital requirement will lead to decrees the cost of borrowing (Uyar, 2009).

Although this perspective has been accepted form a lot of scholar many other researchers indicate that the opposite is grater closest to true,

meaning the longer CCC (conservative investment strategy in working capital) the grater firm profit, because maintaining a high level of inventory and account receivable, expected to causes increasing in sales and decreeing the supply cost (Blinder and Maccini, 1991). On the other hand another goal affected by the length of CCC is liquidity, shorter CCC led to faster retrieval of cash flow whereas longer CCC will cost the firm more time to retrieval cash flow that could led to high liquidity risk (Soenen, 1993).

Based on the above, the target of the firm's working capital management is to focus their attention to shorter CCC as they could and this can be done by decreasing the inventory conversion period (inventory days); reducing the receivables collection period (trade receivables days) and by increasing the payables deferral period (Uyer, 2009).

As a result efficient management of CCC cannot be achieved until efficient management and monitoring of CCC components.

Inventory conversion period can be reduced by shortening the length of the production cycle, trade receivables conversion period can be shorted by offering incentives for early payment, by reducing the period of credit offered to customers, by chasing slow or late payers, however trade payables deferral period is less flexible as it is determined by a firms suppliers.

2.5.3.1 The Management of Receivables

Nature of Account Receivables

Although some firm's sales are made for cash, today the vast majority of sales are on credit, and when a firm sells its product in credit, account receivables are created.

Accounts receivable management includes firm’s credit policy and the cost related to this policy. Moreover, credit policy is a key determinant of sales, so different amount of account receivable is different between firms depending on credit sales (Keown, 2004).

There are three main reasons behind firm depending on credit sales (Hamptone, 1989):

1- Maximizing sales of the firm, firms selling on account have more amount of sales than firm with cash selling because most of the firms customer do not have enough cash to pay for Purchases immediately.
2- Maximizing profit, related to (1) increasing the firm amount of sales because of credit sales policy that led to increase the firm profit. But this occur when sales profit margin exceed the cost related to credit policy.
3- The Competition, firms sell their good on account because other firm in the market doing the same. Hence it’s a great important to talk about the firm's credit policy.

Firms Credit Policy

Credit policy can affect the firm's sells volume, because having a credit policy allows people to purchase products or services they might not purchase right away.

Credit policy consists of four variables (Brigham &Houston, 2011):

1- Credit period refers to the length of time buyers are given to pay for their purchases. Customers prefer longer credit periods, so lengthening the period will stimulate sales. However, a longer credit period lengthens the cash conversion cycle; hence, it ties up more capital in receivables, which is costly. Also, the longer a receivable is outstanding, the higher the probability that the

customer will default and that the account will end up as a bad debt.

2- Offering discounts, this refers to price reductions given for early payment. The discount specifies how rapidly payment must be made to be eligible for the discount. For example, a 2% discount is often given if the customer pays within 10 days. Offering discounts has two benefits. First, it will stimulate sales. Second, discounts encourage customers to pay earlier than they otherwise would, which shortens the cash conversion cycle. However, discounts mean lower prices and lower profit unless the quantity sold increases by enough amounts to offset the price reduction.

3- Credit standards, which refer to the required financial strength of acceptable credit customers. With regard to credit standards, factors considered for business customers include ratios such as the customer's debt and interest coverage ratios, the customer's credit history (has the customer paid on time in the past or tended to be delinquent).

   The key question credit manager must ask before offering credit is: Is the customer likely to be willing and able to make the required payment on schedule?

   when standards are set too low, bad debt losses will be too high; on the other hand, when standards are set too high, the firm loses too many sales and thus profits.

4- Collection policy refers to the procedures used to collect past due accounts, including the toughness or laxity used in the process. Inlaxity collection policy, the firm might write a series of polite letters after a fairly long delay; while in toughness collection policy; delinquent accounts may be turned over to a collection

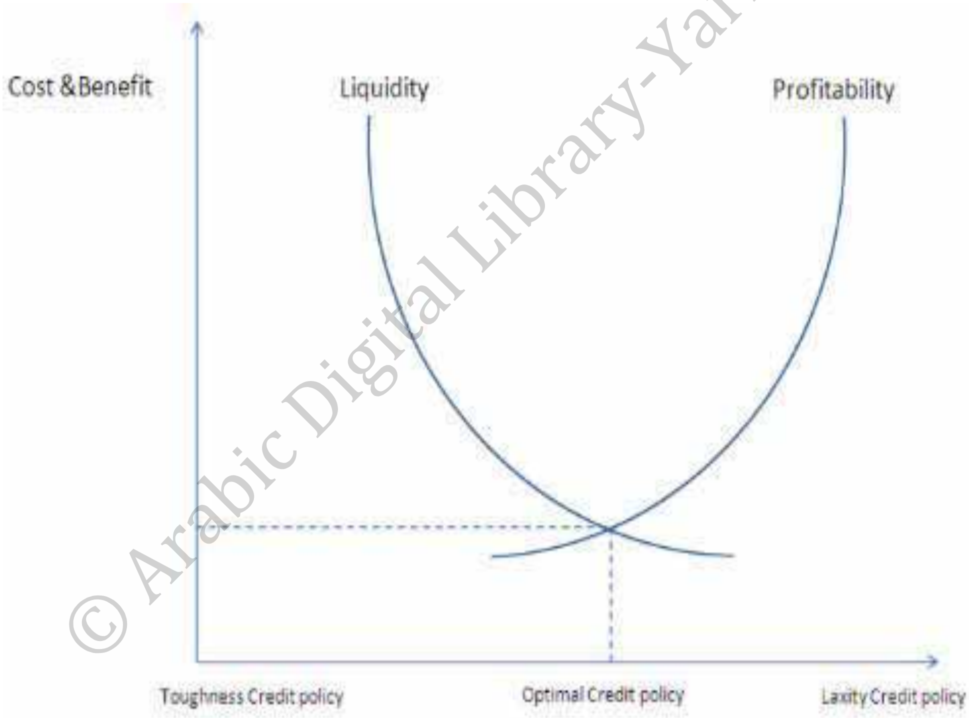
agency relatively quickly. But excessive pressure from the firm can lead customers to take their business elsewhere.

Optimal Level for Account Receivable:

A balance must be struck between the costs and benefits of different firm Credit policies variables to achieve the optimal level of investment in account receivable (Sharma, 1998).

It mean by cost, the risk related to liquidity and opportunity cost as show in the figure (2.8).

Figure (2.8)
Optimal Level for Account Receivable



Source: Sharma, 1998

2.5.3.2 The Management of Inventory

Inventory is often the largest item in the current assets category so it has the greatest interest from the operation and production management department. The aim of inventory management is to determine the optimal level firm must maintain it to achieve maximum profit with lower

cost. Wholesale and retail firms purchase goods that are primarily in finished form. These firms are intermediaries in the process of moving goods from the manufacturer to the end-user. Unlike merchandising firms, manufacturing firms actually produce the goods they sell to wholesalers, retailers, or other manufacturers.

Inventory for a manufacturer consists of three different parts (Shim & Siegel, 1998):

1- Raw materials: represent the cost of components purchased from other manufacturers that will become part of the finished product. The firm must maintain acceptable level of raw material to ensure countenance of operation and to take advantage of cost if raw material price expected to rise in future.
2- Work in process: This includes all the raw materials that are in various stages of development.
3- Finished goods: Once the manufacturing process is completed and good is available for customer purchase.

Cost Related to Inventory

Costs which may be incurred in holding inventory include (Ross, et.al, 2008):

1- Holding costs: include Inventory carrying cost, such as insurance, rent, utility charges, and the opportunity cost of cash tied up in inventory, these costs fall down relatively to decreasing in inventory value.
2- ordering cost: include those cost that are not related to the level of order such as order administration expenses, ordering cost fall down relatively to increase in inventory value.

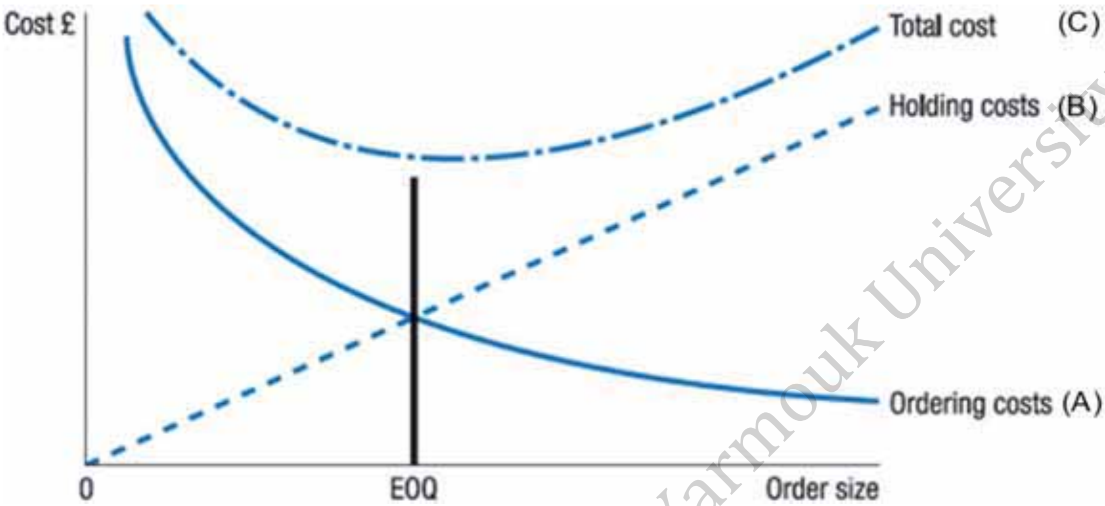
Optimal Level of Inventory

Optimal inventory levels depend on sales, so sales must be forecasted before target inventories can be established (Brigham &Houston, 2011). Moreover, because errors in setting inventory levels lead to lost sales or excessive carrying costs and as a result firm profit will be decrease (Preve & Allende,2010), inventory management is quite important. Therefore one of the best methods to determine the optimal level of inventory is the economic order quantity method (Ross, et.al, 2008). Following are the underlying assumptions for the economic order quantity method (EOQ):
The cost of the ordering remains constant.

- The demand rate for the year is known and evenly spread throughout the year.
- No cash or settlement discounts are available, and the purchase price is constant for every item.
- The optimal plan is calculated for only one product.

Without these assumptions, (EOQ) method cannot work to its optimal potential. According to this method Optimal level of inventory is where the record holding costs and ordering costs are minimized as seen in the figure (2.9). Curve (A) represent ordering cost that decries as inventory level increase ,Curve (B) represent holding costs that decries as inventory level decries, Curve (C) represent total cost that equal holding cost and ordering cost this total cost will be at the minimum point at quantity EOQ, this level of quantity achieve the balance between holding cost and ordering cost.

Figure (2.9)
Optimal Level of Inventory



Source: Ross, et.al, 2008

But referring to previous assumptions that (EOQ) relay on, those assumptions found it unreliable because firm operates in event of uncertainty and level of demand isn't constant. On this basis firm must have extra level of inventory value exceed (EOQ) (Solomon & pringle, 1981).

2.5.3.3 The Management of Account Payable:

Accounts payable is a form of short term debt; it represents any amount that firm owes to suppliers as the result of a purchase of goods or services on a credit basis. Trade credit is considered a source of financing in the sense that it arises spontaneously from ordinary business transactions (Brigham &Houston, 2011).

Accounts payable would be the main source of short term financing for small firms that have difficulties in attaining another sours of credit (Brigham& Daves, 2010). The smaller the firm, the higher the percentage of trade credit as a current liability.

Cost of Credit:

It depends on trade credit term. Trade credit may be free, or it may be costly. When a firm buys something from a supplier on account and does not offer discounts, the credit is free so there is no cost for using it (Brigham &Houston, 2011). However, if discounts are available supplier given an invoice and it will have terms that look like " 2/7 n/30" means that firm can receive a 2% discount if the bill is paid within 7 days, or the payment of the bill in full is due in 30 days.

There is an opportunity cost involved if the firm wants to wait the whole 30 days before paying bill (Clayman et al, 2012). Do not tacking the supplier discount into firm consideration could be costly, therefore firm must calculate this cost (opportunity cost) and insure that is lower than cost from another source before taking the design to give up supplier interest discount (Ehrhard and Brigham, 2009). Nevertheless the firm well gives up the discount interest if it has a series need of cash flow.

Accounts Payable Period

Its defend as the length of time firm has to repay the amount of debt owed on a credit obligation. It is measured by using accounts payable turnover ratio. However when firms are offered a discount they pay their account payable faster. But shorter payable period not always in the interest of the firm, a lot of firms prefer the deferment payment period (low Accounts payable turnover) because it raise the level of liquidity and it can leads to shorter CCC period.

Ebben and Johnson (2011) found that accelerating the collection of debts and making payable payments slow are very important methods to reduce firm requirement of external sources of funds. On the other hand firm must be careful because if it extremely extends the payable period this

might lead to the use of restricted credit condition by the suppler and could damage the firm reputation (Nobanee, 2009).

2.6 Drawback of Cash Conversion Cycle:

As many researchers agreed on the definition of CCC is the length of time between cash Payments for purchase of raw materials and the collection of receivable associated with the sale of finished goods. The definition focuses only on the length of time financial flows engaged in the cycle and does not consider the Amount of fund committed to a product as it moves through the cash conversion cycle, Therefore, Gentry Vaidyanathan and Wai (1990) suggest a weighted cash conversion cycle that takes into consideration both the timing of financial flows and the amount of fund committed to each stage of the cycle.

The weighted cash conversion cycle can be defined as the weighted number of days funds are committed in receivables, inventories and payables, less the weighted number of days financial flows are deferred to suppliers (Gentry, et al. 1990).

In addition to this complexity, a limitation of the weighted cash conversion cycle is the brake up of inventory into three components raw materials, work in process, and finished goods. This division is not available in firm's financial statements; hence, Shin and Soenen (1998) suggest the net trade cycle as an alternative measure for working capital management. The net trade cycle is basically equal to the cash conversion cycle where the three components of the cash conversion cycle (average receivables period, average age of inventory, and average payables period) are calculated as a percentage of sales, this makes the net trade cycle easier to calculate and less complex comparing with the cash conversion cycle and the weighted cash conversion cycle.

2.7 The Gulf Stock Exchanges Overview:

The Gulf Cooperation Council (GCC) is a political and economic union comprising of six Arab states located on the Arabian Peninsula these are namely, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates.

According to Joint Economic Report (2013) published from Arab Monetary Fund, the stock exchanges in GCC have a high liquidity when compared to other Middle East stock exchanges. They are considered the most developed and sophisticated markets in the Arab stock exchange. The number of listed firms at GCC stock exchanges has increased in latest year, which the growth and investor confidence increased. The following table (2.2) shows the different stock exchanges that are located in GCC with their establishment year; value traded; number of shares traded; market capitalization and number of days traded. For the year 2013.

Table (2.2)

The GCC stock exchanges overview

Market stock exchange	establishment year	Value Traded (Million U.S. $)	Shares Traded (Million)	Market Capitalization (Million U.S. $)	No. of Days Traded
Abu Dhabi Securities Exchange	2000	23,092.59	51,455.36	116,909.90	248
Bahrain Stock Exchange	1987	549.58	1,791.67	18,466.25	246
Qatar Stock Exchange	1997	19,883.61	1,848.73	152,588.80	232
Dubai Financial Market	2000	43,529.01	127,180.36	70,713.08	249
Kuwait Stock Exchange	1952	8,352.58	9,158.32	24,370.92	244
Muscat Securities Market	1988	5,770.28	8,033.08	27,407.95	242
Saudi Stock Exchange	1980	361,867.54	51,916.56	459,452.22	245
Total for GCC		463,045.19	251,384.08	869,909.12	

Source: Arab Monetary Fund/ Arab Capital MarketsPerformance

GCC Economic Overview:

According to gulf base website, the GCC is an oil-based region with the largest proven crude oil reserves in the world (486.8 billion barrels), representing 35.7% of the world's total. For the GCC region, oil and gas sector represents approximately 73% of total export earnings, roughly 63% of government's revenues and 41% of its GDP. In the last ten years, financial services grew rapidly in Bahrain, Kuwait, Qatar, and the United Arab Emirates, while real estate services grew rapidly in the United Arab Emirates. Government services grew throughout the region, most markedly in Bahrain and the United Arab Emirates. A construction boom was most pronounced in the United Arab Emirates, with significant growth in Qatar and Oman. Tourism is a rapidly growing sector, Saudi Arabia based on religious tourism among the top 20 destinations in the world by number of tourists. On the other hand manufacturing sector continues make a small contribution to revenue, reflecting the policy decision to provide a low-tax environment to stimulate private sector activity (including the absence of a corporate income tax in most countries) and the absence of a personal income tax. The table (2.3) shows how Industry contributed to real GDP growth during the last six years.

Table (2.3)

GCC Countries Industry contributed to Origin of GDP (% real change)

	2008	2009	2010	2011	2012	2013
U.A.E.	2.7	-6.6	1.7	5.3	3.8	3.5
K.S.A.	4.4	-3.4	4.7	8.2	6.6	3.5
Qatar	22.5	6.1	22.2	13	4.6	2.7
Kuwait	8.6	-13.9	3	8.9	4.9	4.7
Oman	12.2	10	5.9	1.6	5	5.1
Bahrain	4.7	0.1	2.3	1.5	1.8	2.5

Source: The Economist Intelligence Unit estimates (2013)

Manufacturing industries, typically export-oriented and in fairly energy-intensive products, are emerging in some countries and include plastics, petrochemicals, and aluminum smelting. Bahrain, the United Arab Emirates, and, to some extent, Qatar, had increases in non-hydrocarbon manufacturing.

Christine Lagarde, Managing Director of the International Monetary Fund (IMF) highlights the strong performance of GCC countries in (2013) illustrating that, while prospects remain challenging for many countries throughout the Arab world; the GCC economies are enjoying high growth. The effects of the global bad economic condition have so far been limited, oil prices remain near historically high levels, and higher export volumes have contributed to buoyant hydrocarbon revenue. With expansionary fiscal policies and low interest rates providing strong incentives, the GCC's enjoyed a 7.5 percent output growth in 2012 with continues and strong, in 2013.

Chapter Three

Literature Review

3.1 Introduction

The importance of working capital management is not new to the finance literature and the review of prior literature reveals that there exists a significant relation between profitability and working capital management by using different variable selection for analysis. Although developed countries have had precedence in studying this topic, there are many studies among developing countries rises in resent year. Working capital management studies may vary between developed and developing countries according to different economic characteristics, region low restriction and degree of riskiness. Therefore The next section will review previous literature conducted about the relationship between working capital management and the profitability divided into two parts : studies in developed countries, and studies in developing countries.

3.2 Literature in Developed Country

An important study conducted by **Deloof (2003)** investigates the relationship between working capital management measures and profitability for a sample of 1009 large Belgian non-financial companies over the period (1992-1996). He used regression models with fixed effects and OLS regression with dummy variable for time and industries. The results for the regression models estimated with fixed effects showed that profitability increases with the decrease in the ACP, AAI, and financial leverage. On the other hand, profitability measured by growth operating income increases with the increase in company size, sales growth, and fixed financial assets ratio. The researcher suggested that

managers could create value for their stockholders by reducing the number of days account receivables and inventories account to a reasonable minimum. The negative relationship between account payable and profitability is consistent with the view that less profitable companies wait longer to pay their bills.

In United States of America many researchers study the management of working capital. **Nobanee (2009)** study investigates the link between the cash conversion cycle component (receivable collection period, inventory conversion period, payable deferral period) and the firm's profitability for 5802 nonfinancial firm listed in New York stock exchange, for the period (1990-2004).the Researcher use growth operating profit as measure of profitability. The study shows that there is a positive relation between growth operating profit and cash conversion cycle, receivable collection period, sales growth. Also a negative relationship between growth operating profit and, payable deferral period, quick ratio.

Using a sample drown form manufacturing sector **Gill *et al.* (2010)** investigate the relationship between working capital management and profitability. With a sample of 88 American firms listed on New York Stock Exchange for a period of 3 years from (2005 – 2007). They found statistically significant relationship between the cash conversion cycle and profitability, measured through gross operating profit. They observed that managers can create profits for their companies by handling correctly the cash conversion cycle and by keeping accounts receivables at an optimal level. The study contributes to the literature on the relationship between the working capital management and the firm’s profitability.

Exploring the relationship between working capital management and liquidity **Ebben and Johnson (2011)** investigate the relationship between cash conversion cycle and levels of liquidity, invested capital, and performance in small firms over the period (2002-2004). In a sample of 879 small U.S manufacturing firms and 833 small U.S. retail firms, cash conversion cycle was found to be significantly related to all three of these aspects. Firms with more efficient cash conversion cycles were more liquid, required less debt and equity financing, and had higher returns. The results also indicate that small firm owners, managers may be reactive in managing cash conversion cycle.

Using a sample drown form Canadian firms **Gill (2011)** explores the factors that influence the working capital requirements. A sample of 166 Canadian firms listed on Toronto Stock Exchange for a period of 3 years from (2008-2010). Overall results indicate that operating cycle, return on assets, positively related to the working capital requirements in the Canadian manufacturing industry. The study also found that, Tobin's q, and firm size negatively related to the working capital requirements in the Canadian service industry.

Another sample drown form Japanese firms **Nobanee & Al Hajjar (2009)** investigate the relationship between working capital management and firm's profitability (measured by return on investment) on a large cross-section of 2123 Japanese corporations active in the Tokyo Stock Exchange covered the period from (1990 – 2004). The study revealed that managers can improve firm's performance by managing working capital effectively by shortening the cash conversion cycle, the receivables collection period and the inventory conversion period. The results also suggested that extending the payables deferral period could increase profitability Moreover, they recommended that managers should be

careful with regard to the lengthening of payable deferral since it might harm the corporation's credit reputation, and as a result decrease profitability in the long-run horizon.

Also a number of researches have been conducted in Scandinavian countries which contributed to the body of knowledge in working capital literature. **Rimo & Panbunyuen (2010)** investigate the effect of company characteristics (profitability, operating cash flow, company size, sale growth, current ratio and debt Ratio) on the working capital management. The sample consists of 40 companies in the large cap investment segment listed on Stockholm Exchange for the period (2007 – 2008). The researchers use cash conversion cycle as a measure of working capital management, study finds that there is a significant positive association between profitability measured by return on assets and the cash conversion cycle, in addition cash conversion cycle has significant negative relationship with operating cash flow, company size and sale.

Another perspective from **Ali & Ul Hassan (2010)** examined the relationship between working capital policy and profitability of Swedish firms. Using a sample of 37 companies which are listed at Stockholm Stock Exchange over the period of five years (2004-2008). The researchers choose growth operating profit as a measure of profitability and CCC is used as a measure of aggressiveness of working capital policy, there is no relationship between working capital policy and profitability. The result also indicates the existence of a negative relationship between profitability and average collection period. Finally researchers also observed that longer account payables period gives higher profit and there is a positive relationship between profitability and day's inventory held.

To see if working capital management affects the level of corporate cash holdings **Zhang (2011)** analyses 660 Finnish trading firms and 800 Finnish manufacturing firms for the period of (2003 – 2007). It is observed that there are not sufficient evidence to support the notion that Finnish firms applied high efficient working capital management that lead to high corporate cash holdings also. The results reveal a negative relationship between the CCC and the level of cash. Hence, working capital management has negative relationship in general with the corporate cash holdings.

Expanding the study period to 18 years **Enqvist *et al.* (2013)** investigate the relationship between working capital management and firm profitability (measured by return on assets and growth operating income) in deferent business using a sample of all firms listed on the Helsinki Stock Exchange for the period, between (1990 –2008). Negative relationship between cash conversion cycle, account payable cycles and corporate profitability. The study also shows that companies can achieve higher profitability levels by managing inventories efficiently and lower accounts receivable collection times. The study also found that the impact of efficient working capital on operational profitability increases in economic downturns.

Many other studies investigate relationship between working capital management and profitability in Turkey. For the year 2007 **Uyar (2009)** investigates the relationship of cash conversion cycle with firm size and profitability. Using a sample of 166 companies listed on the Istanbul Stock Exchange (ISE). To achieve the objective of the study, Anova analysis and Pearson regression are used. The findings indicated a significant negative correlation between the length of CCC and the firm

size and a significant negative correlation between the length of CCC and profitability. The result also indicates that retail firms have the shortest CCC with an average (34.58) days and manufacturing firms have the longest CCC with an average (164.89) days.

Using panel data analysis, **Karaduman *et al.* (2011)** investigate the relationship between working capital management and corporate profitability, using a sample of 127 companies listed on the Istanbul stock exchange for the period of (2005 – 2009). The cash conversion cycle (CCC) is used as a measure of working capital management efficiency and return on assets (ROA) used a measure of profitability. They found that reducing cash conversion cycle (CCC) affect positively on return on assets (ROA). They also suggest that it may be possible to increase profitability by improving efficiency of working capital.

Using a sample drown from manufacturing firms only **Vural *et al.* (2012)** investigate the relationship between working capital management components and performance of the firms by using dynamic panel data analysis. The study is based on secondary data collected from 75 manufacturing firms listed on Istanbul Stock Exchange Market for the period (2002-2009). The results demonstrate that firms can increase profitability measured by gross operating profit by shortening collection period of accounts receivable and cash conversion cycle. Leverage as a control variable has a significant negative relationship with firm value and profitability of firms. This means, increase in the level of leverage will lead to decline in profitability of the firm and the value of the firm.

More research in a newly industrialized market economy, specifically in Southeastern Asia region that examine the relationship between working capital management and corporate profitability, for

example **Zariyawati *et al*. (2009)** study was based on panel data analysis for 1628 company for the period 1996-2006 drown from six different economic sectors listed in Malaysian Bursa. The coefficient results of Pooled OLS regression analysis provided a strong negative significant relationship between cash conversion cycle and corporate profitability. The results reveal that reducing cash conversion period results in increased profitability. Thus, company managers should work on shortening cash conversion cycle till optimal level is achieved.

Using panel data analysis, pooled OLS and fixed effect estimation**, Mansoori and Muhammad (2012)** investigate the effect of working capital management on firm's profitability for a sample of 92 firms listed in the main board of Singapore Stock Market Exchange from (2004 – 2011). They found that managers can increase profitability by managing working capital efficiently. Moreover, managers can improve firm's profitability by shortening receivable conversion period and inventory conversion period.

Working capital management and profitability relationship has been investigated in Greece. **Lyroudi and lazaridis (2000)** study examined the cash conversion cycle (CCC) as a liquidity indicator of the food industry and tries to determine its relationship with the current and the quick ratios, and investigates the implications of the CCC in terms of profitability, indebtness and firm size. The data are taken for one year (1997) from 82 major companies in the food and beverage industry. The study indicated that there is a significant positive relationship between the cash conversion cycle and liquidity (current and quick ratios). The cash conversion cycle was positively related to the return on assets and the net profit margin but had no linear relationship with the leverage ratios. On the other hand, the current and quick ratios had negative relationship with

the debt to equity ratio, and a positive one with the times interest earned ratio. Finally, there is no difference between the liquidity ratios of large and small firms.

Using gross operating profit as a proxy for firm's profitability **Lazaridis and Tryfonidis (2006)** investigate the relationship of corporate profitability and working capital management. They used a sample of 131 companies listed in the Athens Stock Exchange (ASE) for the period of (2001-2004). The purpose of their study is to establish a relationship that is statistically significant between profitability, the cash conversion cycle and its components for listed firms in the ASE. The results of research showed that there is a statistical significance between profitability, measured through gross operating profit, and the cash conversion cycle. Moreover, they found that managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component (accounts receivables, accounts payables, inventory) to an optimum level.

In another member state of the European Union**, Charitou *et.al* (2010)** study the effect of working capital management on firm's profitability, using 43 industrial firms listed in the Cyprus Stock Exchange for the period (1998-2007). Financial institutions and financial firms were excluded from the sample due the distinct nature of their operations. The researcher use cash conversion cycle as a measure of working capital management, return on assets as a measure of profitability. And firm size, sales growth, debt ratio as controllable variables the study shows that there is negative relationship between the firm's profitability and days in inventory, cash conversion cycle, day's

,sales outstanding, and creditor payment period. As a result, firms can increase profitability by reducing cash conversion cycle.

3.3 Literature in Developing Countries

The topic of working capital management and its relationship between profitability has been the focus of research in many developing countries such as (Iran, India, Pakistan and Jordan). In India **Chatterjee (2012)** analyzed the impact of working capital on the profitability for a sample of 100 Indian companies listed in the Bombay Stock Exchange for a period of 2 years from (2010-2011). The various components for measuring the working capital management include; the receivable days outstanding, inventory turnover days, payable days, cash conversion cycle, current ratio and quick ratio on the net operating profitability of the Indian companies. The results show that, there is a strong negative association between the components of the working capital management and the profitability ratios of the Indian firms which indicate that, as the cash conversion cycle increases it would tend to reduce the profitability of the company, and the managers might increase the shareholder's value by shortening this cash conversion cycle to a minimum level. A negative association also persists between the liquidity and the profitability of the Indian firms. But a positive relationship between the size and the profitability of the firm is found.

Whereas in Iran, **Ahmadi *et al*. (2012)** investigate the relationship between working capital management and profitability in companies of food industry sector at Tehran Stock Exchange, 33 companies were selected for a period of five years from (2006-2011). The results of the study showed that there is an inverse relationship between the variables of working capital management and profitability .They found out that increasing collection cycle, debt payment period, inventory turnover and cash conversion cycle leads to decreasing profitability in the companies. They also suggest that managers can create a positive value for

stockholders by decreasing collection cycle, debt payment period, inventory turnover and cash conversion cycle to the lowest possible level.

In Pakistan, **Raheman and Nasr (2007)** using a sample of 94 Pakistani manufacturing firms listed on Karachi Stock Exchange for a period of 6 years from (1999 – 2004). They have studied the effect of different variables of working capital management including the Average collection period, Inventory turnover in days, Average payment period, Cash conversion cycle and Current ratio on the Net operating profitability of Pakistani firms. Debt ratio, size of the firm and financial assets to total assets ratio have been used as control variables. The results show that there is a strong negative relationship between variables of the working capital management and profitability of the firm. Which implies that as the cash conversion cycle increases it will lead to decreasing profitability of the firm, and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level. The results also found that a significant negative relationship between liquidity and profitability exists. And a positive relationship between size of the firm and its profitability. Finally they found a significant negative relationship between debt used by the firm and its profitability.

Another contribution from the same first author, **Raheman *et al.* (2010)** extended the period to 2007 and increasing the sample size to 204, the authors investigate the relationship between working capital management and corporate performance .The results show that for overall manufacturing sector, working capital management has a significant impact on profitability and play a vital role in value creation of shareholders. Longer cash conversions cycle (CCC) and net trade cycle

have negative impact on profitability. The researchers also found that gross working capital turnover ratio and current assets to total assets ratio have significant positive impact on profitability. Dividing the manufacturing sector into subsectors (Engineering, Sugar, Chemicals, and Fuel and Energy) **Ali and khan (2011)** paper searches for important endogenous and exogenous factors that have an influence on working capital management of manufacturing firms in Pakistan for the period of (2000 to 2008). Findings show that Chemical firms are managing their working capital requirements and liquidity balances more efficiently than other sector. Other finding Indicate that poor economic conditions affect working capital requirements and put firms under significant pressure of more efficient management practice. Finally the study could not identify any uniform micro or macro determinants across all selected sectors.

In African region, the working capital management topic studied in Kenya, **Mathuva (2010)** investigates the influence of working capital management components upon corporate profitability by using a sample of 30 companies listed on the Nairobi Stock Exchange (NSE) from 1993 to 2008. He used Pearson and Spearman's correlations, the Pooled Ordinary Least Square (OLS), and the fixed effects regression models to conduct data analysis. The findings of his study are that there is a highly significant negative relationship between accounts collection period and profitability. In regard to the relationship between profitability and the inventory conversion period or the average payment period, the results were positive and significant.

InVietnam **Dong and Su (2010)** investigate the relationship between working capital management and profitability. Using data for 130 firms listed in Vietnam stock market for the period of (2006-2008).

The results show that there is a strong negative relationship between profitability, measured through gross operating profit, and the cash conversion cycle. This means that as the cash conversion cycle increases, it will lead to declining of profitability of firm. Therefore, the managers can create a positive value for the shareholders by handling the adequate cash conversion cycle and keeping each different component to an optimum level, the result also indicates that Vietnamese firm recorded CCC with an average (96) days, with a maximum (410.65) days and minimum (121.7) days .

Finally, in the Arab region, **Al-Debi'e (2011)** examines the relationship between profitability and working capital management, using a sample of 77 industrial companies listed on Amman Stock Exchange during the period (2001-2010). The results show that less profitable companies wait longer to sell their products, to collect credit sales, and to pay their supplies of goods. Moreover, the results show that regardless of the level of profitability industrial companies in Jordan pay their suppliers before collecting credit sales. The control variables (size, leverage, and GDP growth) included in all regression models were significant and have the expected signs. Profitability increases with Size and GDP growth and decreases with leverage. Investigating the impact of working capital management policies on the firm's profitability and value, **Al-Mwalla (2012)** using annual data for 57 industrial firms listed in Amman Stock Exchange for the period of (2001 - 2009), shows that following a conservative investment policy has a positive impact on a firm's profitability and value. However, following the aggressive financing policy has a negative impact on the firm's profitability and value. Finally, the results found that firm size, growth and GDP growth have a positive

impact on the firm's profitability and value with no effect of financial leverage.

3.4 What Distinguishes This Study from Previous Studies

In summary, all the above studies tend to indicate that working capital management has an impact upon corporate profitability, hence investigating this relationship in economies with different structure and different financial setup, provided an incentive to examine and observe the relationship between working capital management and profitability for firms listed in GCC countries. As to the researcher knowledge no such research exists.

The following chapter provides the research methodology and data analysis

Chapter Four

Research Methodology

4.1 Introduction

This chapter discusses the methodology used to investigate the relationship between working capital management and profitability of manufacturing firm listed on stock market exchanges in Cooperation Council for the Arab States of the Gulf, over the period 2007 to 2012. Furthermore this chapter introduces the population of the study, the chosen sample for the study, sources of data, a brief explanation about the variable under investigation in addition of their measurement, and the model with its specifications.

4.2 Population and Sample of the Study

The population of the study includes all manufacturing firms listed in (GCC) financial market exchanges for the period (2007-2012). It is noticed that the manufacturing firm in (GCC) spread over several sectors, according to the law of each stock market exchanges. The sample of the study also includes manufacturing firms that fulfilled the following criteria:

1- The selected firms should have maintained their identity and published their financial statement (balance sheet, income statement) over the period 2007 to 2012.
2- The selected firms should have all data required to calculate the study variables over the period 2007 to 2012.
3- The selected firms should be listed in the stock market exchange for the country under study over the period 2007 to 2012.

4- The selected firms should not be overseas, commercial, conglomerate (making investment activities outside its operating business) and oil, gas firms are excluded from the study sample.

After applying those criteria the final sample consists of (74) manufacturing firms with 444 observations.

4.3 Data Collection

The sources of data for the purposes of statistical analysis represented by firm's yearly financial reports (income statement and balance sheet) published in electronic websites of security market exchange related to the six member states of the Gulf (Saudi Stock Exchange (Tadawul), Kuwait Stock Exchange, Qatar Stock Exchange, Bahrain Stock Exchange (Bourse), Muscat Securities Market, Dubai Financial Market and Abu Dhabi Securities Exchange).

4.4 Models of the Study and Hypotheses:

After reviewing the literature of working capital management and to achieve the objectives of the study as mentioned in the second chapter the researcher will select the following assumptions:

H1: There is no significant relationship between cash conversion cycle and the profitability of the manufacturing firms in GCC countries.

H2: There is no significant relationship between the cash conversion cycle component and profitability of the manufacturing firms in GCC countries

H2a: There is no significant relationship between average age of inventory and the profitability of the manufacturing firms in GCC countries**.**

H_{2b}: There is no significant relationship between average collection period and the profitability of the manufacturing firms in GCC countries**.**

H_{2c}: There is no significant relationship between average payment period and the profitability of the manufacturing firms in GCC countries.

Following the structures of the models previously applied by Deloof (2003) and Lazaridis and Tryfonidis (2006), and to test the above Hypotheses the researcher estimates the following two main regression models, which have been used to examine the effects of the working capital management on profitability:

(A_1) Profitability(ROA)=β0+β1(AAI)+β2(ACP)+β3(APP)+β4(Size)+β5(DR) +β6(SG)+β7(G.GDP)+εit

(A_2) Profitability(GOI)=β0+β1(AAI)+β2(ACP)+β3(APP)+β4(Size)+β5(DR) + β6(SG) + β7(G.GDP) + εit

(B_1) Profitability(ROA)=β1(CCC)+β2(Size)+β3(DR)+β4(SG)+β5(G.GDP) + εit

(B_2) Profitability(GOI)=β1(CCC)+β2(Size)+β3(DR)+β4(SG)+β5(G.GDP) +εit

Where:

Profitability is measured by return on assets (ROA) and growth Operating income (GOI).

AAI: represents average age of inventory.

ACP: represents average collection period.

APP: represents average payment period.

CCC: represents cash conversion cycle.

Size: represents firm size.

DR: represents debt ratio.

SG: represents sales growth

G.GDP: represents growth in country gross domestic product

$\beta0, \beta1 \ldots \beta8$: are coefficient values

i: represents the number of firms

t: represents the period of time

4.4.1 Measurements of Variables

4.4.2 Dependent Variable:

Firm profitability:

A number of studies used return on assets as a measure of firm's profitability like Karaduman et al. (2011);Nobanee & Al Hajjar (2009); Gill (2011) , another studies used operating cash flow like Rimo & Panbunyuen (2010), in addition Deloof (2003) and Lazaridis & Tryfonidis (2006) used growth operating income.

In this study the researcher uses two measurement of profitability represented by:

Return on assets = net income / total assets

Growth operating income = Gross profit / owners' equity

Because the return on assets can be considered as an overall indicator of firm profitability, growth operating income measures firm operational performance (Enqvist. et al, 2013). Moreover, the researcher intention is to exclude the participation of any financial activity from operational activity that might affect overall profitability, hence the ability to directly

relate the success or failure of operational activities of the firm (Lazaridis and Tryfonidis 2006).

4.4.3 Independent Variables:

- **Average Age of Inventory**:

According to Deloof (2003), it is calculated using the following equation

Average Age of Inventory = (Inventory / Cost of Goods Sold)*365

- **Average Collection Period**:

According to Deloof (2003), it is calculated using the following equation

Average Collection Periods = (Account receivables / Sales)*365

- **Average Payment Period**:

According to Deloof (2003), it is calculated using the following equation

Average Payment Period= (Account Payables / Cost of Goods Sold)*365

- **Cash Conversion Cycle**:

Cash conversion cycle as a proxy for working capital management efficiency. According to Deloof (2003) Cash conversion cycle calculated by the following formula:

Cash conversion cycle = Average Age of Inventory + Average Collection Periods - Average Payment Period

4.4.4 Control Variables:

- **Size of the Firm**:

To keep size as constant factor, this study will uses natural logarithm of total assets as control variable. While there is a study use logarithm of the sales like Gill et al, (2010), and another used logarithm of total assets like Lyroudi and lazaridis (2000)

- **Sales Growth Ratio**:

Represents the sales percentage growth of the firm from year to another Calculated by the following formula:

Seals growth = (Current year sales - previous year sales)/ previous year sales

- **Debt Ratio**:

The debt ratio as a proxy for leverage. It measures the percentage of total assets financed by creditors. To keep the debt utilization effect constant, debt ratio is taken as control variable. It is calculated using the following formula (Gill et al., 2010):

Debt ratio =Total Liabilities / Total Assets

- **Growth in Country Gross Domestic Product**:

The researcher uses the annual growth in GDP as control variable because researcher expected that firms benefit from the growth in GDP. It is calculated using the following formula:

Growth in GDP = (Current year GDP for the country - previous year GDP for the country)/ previous year GDP for the country

4.5 Limitations of the Study:

Before starting to present and analyze the data, the researcher will mentions some restrictions or limitations that may constrain for applying the result of the sample to the population of the study, it is outside of the researcher control and cannot be avoided :

1- The study tacking into consideration the three industrial sectors only (Industrial-basic material industry-food industry-health care industry) without the rest sectors due to the different nature and activity between the countries sectors itself and another GCC country sectors.

2- Different accounting policies from one country to another may affect the validity of the results

Chapter five

Data Analysis

5.1 Introduction

The following section presents data statistical analysis and deals with the descriptive statistics analysis, and the results of estimating of the regression equation using Panel data, which can be estimated by using a fixed effect and Random effect. However, the analysis will concentrate only on the style, which is proved to be through the results of Hausman Test, as the best one to fit with the data study, and gives more accurate results. And since the working capital management changes from one firm into another across time, the Panel Data Analysis is considered as better than Pooled Analysis for estimating the regression equation.

5.2 Descriptive statistics of the study variables:

Table (5.1) shows the descriptive statistics of the study variables for the period between 2007 to 2012, which is represented by the mean and the standard deviation, in addition to the lowest and the highest value of the variables.

Table 5.1
Descriptive statistics of the study variables over the period of the of the study

Variable	Mean	Std. Dev	Min	Max
ROA (return on assets)	6.83	8.64	-32.25	43.98
GOI (growth operating income)	16.41	13.43	-55.62	75.69
AAI (average age of inventory)	119.77	92.22	4.056	1013.70
ACP (average collection period)	94.86	59.82	6.64	489.16
APP (average payment period)	139.11	109.1	5.44	695.41
CCC (cash conversion cycle)	75.54	90.02	-363.13	504.95
SG (Sales growth)	13.52	25.13	-51.39	147.53
Size (firm size)	5.36	1.092	3.44	8.52
DR (Debt ratio)	38.03	20.96	3.53	104.88
G.GDP (GDP growth)	13.1	17.54	-28.14	44.59

Source: depending on STATA software

The table indicates that:

- The average return on assets for the GCC manufacturing firms is (6.83%), with a standard deviation of (8.64). It is considered as a high ratio. This percentage varied between (-32.25%) as a minimum, and (43.98%) as a maximum. In addition, this disparity is due to the different size of the companies and the investment opportunities available to them.
- The average growth operating income for the GCC manufacturing firms is (16.41%) with a standard deviation of (13.43). This

percentage varied between (-55.62%) as a minimum and (75.69%) as a maximum.

- The mean of average age of inventory is (119.77) days, with a standard deviation of (92.22). This percentage varied between (4.056) days as a minimum, and (1013.7) days as a maximum.
- The mean of average collection period is (94.86) days, with standard deviation of (59.82). This percentage varied between (6.64) days as a minimum, and (489.16) days as a maximum.
- The mean of average payment period is (139.11) days, with standard deviation of (109.1). This percentage varied between (5.44) days as a minimum, and (695.41) days as a maximum.
- The average length of the Cash conversion cycle reached (75.54) days for the GCC manufacturing firms, that is lower than the average length of the cash conversion cycles in America , that reached of about (89.94) days in (2010) (Gill et al.2010), and in Turkey, in which the average reached (102. 38) days (Uyar, 2009). This percentage varied between (-363.13) days as a minimum, and (504.95) days as a maximum, with standard deviation reached (90.02).
- As for sales, the average growth rate is (13.52%) with a standard deviation (25.13). The ratio ranged between (-51.39%) as a minimum and a maximum of (147.53%) with a standard deviation of (25.13). This refers to the investment opportunities' disparity among the GCC manufacturing firms, and the reason for this is due to the difference in the firm's size, the degree of their profitability, as well as their ability to obtain financing.

- The average of the firm's size of the GCC manufacturing firms has reached (5.36). This ratio ranged between (3.44) as a minimum, and a maximum of (8.52), where the standard deviation reached (1.092).
- The average debt ratio has reached (38.03%), and this ratio ranged between (3.53%) as a minimum and a maximum of (104.88), and the standard deviation was (20.96). This refers to a disparity between the GCC manufacturing firms in the degree of their dependence on debt financing, and the most important reasons for this disparity are: the size of the firms, and the firm's ability to get loans, the profitability of the firms, and in addition the credit rating of the firms and the conditions of the economy as a whole.
- The average growth in gross domestic product for the GCC manufacturing firms has reach (13.1%), with a standard deviation of (17.54). and this ratio ranged between (-28.14%) as a minimum and a maximum of (44.59%).

There has been a comparison among the GCC manufacturing firms' subsectors with regard to the mean of cash conversion cycles' length, and this is illustrated in the table (5.2).

Table (5.2)
Cash conversion cycles in GCC countries sub-sectors

sub-sectors	CCC in days
Basic Material	100.16
Food Industries	56.96
Industrial	66.64
Health Care	99.58

Source: Prepared by the researcher

It is clear from the above table that, there is a disparity among the GCC manufacturing firms with respect to the cash conversion cycle length, and this is due to the different nature of productive process, the type of produced commodities of one firm to another, and the difference of technology used in the production, as well as to the difference in the credit policy approved by one firm to another. The food industry sector recorded the shortest cash conversion cycle period amounted to (56.96) days. The reason is due to the decrease of the commodities retention period for this sector in the sense that, food is usually perishable materials that must be sold within a short period. As for the sector of basic material industry, it has recorded the longest period of cash conversion cycle that was amounted to (100.16) days, and the reason for this is due to the length of commodities retention period, in addition to, the possibility that firms in this sector follow an open credit policy, which results in the length of the credit period.

5.3 Correlation Matrix between Variables

Table (5.3) presents the analysis' results of the correlation among the independent variables of the study. This test was conducted in order to make sure that, the problem of multicollinearity wasn't there, which is considered as a condition of regression.

Table (5.3)
Correlation matrix between independent variables

	AAI	ACP	CCC	SG	Size	DR	G.GDP
AAI	1						
ACP	0.1438	1					
APP	0.6352	0.359					
CCC	0.3502	0.3767	1				
SG	-0.1254	0.0223	-0.0387	1			
Size	0.1185	-0.0118	-0.048	0.0859	1		
DR	-0.016	0.0048	-0.4487	0.1123	0.0436	1	
G.GDP	-0.0141	-0.0299	0.0123	0.3342	-0.0382	0.0453	1

Source: depending on STATA software

It is cleared from the above table, that the correlation among the independent variables was low, and it didn't exceed the ratio of (0.80). This means the absence of the problem of multicollinearity among the independent variables. It was also relying on the VIF test (Variance Inflation Factor) to assess the problem of multicollinearity, which illustrates the degree to which explains each independent variable other independent variables. In general, if the VIF factor was less than 10, this refers to absence of the Multicollinearity problem. Table (5.4) illustrates the VIF factor for the studies models, that didn't suffer from the problem of multicollinearity, because the VIF factor at all of these models was less than 10.

Table (5.4)
The results of the (VIF) test

Mean VIF	Models
1.5	**A_1**
1.16	**A_2**
1.5	**B_1**
1.16	**B_2**

Source: depending on STATA software

5.4 Results of the Study Model

This part presents the result of the study's models analysis that are used. In addition to that, the researcher selected the Hausman Test to choose the best sample for analyzing the results.

5.4.1 The Relationships Between cash conversion cycle; cash conversion cycle component; and the return on assets.

The results of the (5.5) and (5.6) tables shows the models of study, being estimated by the Random Effect, where the value of the Hausman Fixed Test wasn't a statistical level at (5%). For this reason, the results will only concentrates on the Random Effect.

Table (5.5)

Model (A1) The Relationship between Cash Conversion Cycle Components and Return on Assets

	Fixed effect model	Random effect model
constant	6.06613 (0.660)	8.454486 (0.037)**
AAI	0.0032987 (0.587)	0.0046343 (0.403)
ACP	0.0028689 (0.729)	0.000967 (0.896)
APP	-0.0060413 (0.251)	-0.0091864 (0.061)***
SG	0.035616 (0.000)*	0.0370745 (0.000)*
Size	1.514934 (0.557)	0.7966954 (0.263)
DR	-0.1966094 (0.000)*	-0.1457938 (0.000)*
G.GDP	-0.0147858 (0.281)	-0.017004 (0.215)
R^2	0.1348	0.1307
F-statistic	8.08 (0.000)	61.16 (0.000)
observations	444	444
Hausman test	1.77 (0.9715)	

*, **, ***denotes variable is significant at 1%, 5%and 10% level respectively

Table (5.6)

Model (A2) The Relationship between Cash Conversion Cycle and Return on Assets

	Fixed effect model	Random effect model
constant	5.704739 (0.676)	8.002786 (0.048)**
CCC	0.0043306 (0.334)	0.0055556 (0.185)
SG	0.0363776 (0.000)*	0.0380915 (0.000)*
Size	1.522522 (0.553)	0.7498334 (0.292)
DR	-0.2017379 (0.000)*	-0.1557598 (0.000)*
G.GDP	-0.0143892 (0.285)	-0.0156152 (0.249)
R^2	0.1339	0.1313
F-statistic	11.28 (0.000)	59.10 (0.000)
observations	444	444
Hausman test	0.75 (0.9804)	

*, **, ***denotes variable is significant at 1%, 5%and 10% level respectively

It's observed from table (5.5) and table (5.6) that, there is no statistical significance correlation between the cash conversion cycle and its components on the profitability measured by return on assets, that is to say, the working capital management doesn't affect the GCC manufacturing firms with profitability measured by return on assets. That contradicts with Karaduman et al. (2011), Charitou et.al (2010) Gill (2011) and Lyroudi and lazaridis (2000).

The results also show a significance negative correlation, between the Debt Ratio and the return on assets ratio. This result complies with (Gill

et al., 2010). This means that the increase in debt has a negative effect on the profit of the company, which is due to the increase in financing costs, which reduces the net income.

At last, the results also show a significance positive correlation, between the average of sales' growth (the investment opportunities) on the one hand, and the return on assets the other hand , that is to say, the sales' growth of the GCC manufacturing firms has a positive effect on their profit measured by return on assets , and this is due to that, the sales' growth leads the company to reach to what is called as the economic of the scale , where the total cost are at the lowest level.

It's observed from the result that exploratory power for the model when ROA is used as a proxy for profitability (R^2 for CCC component 0.1307 and R^2 for the CCC itself 0.1313). However this explanatory power is increased when GOI used as proxy for profitability. The details for the result are presented for the following sector.

5.4.2 The Relationship Between cash conversion cycle; cash conversion cycle component; and growth operating income

The results of both (5.7) and (5.8) tables , show that estimating the sample of the study by using the Fixed Effect is the best regression method, and that is shown in the results based on the Hausman Fixed Test, where the value of CH^2 has a statistical level at 5%. On this basis, the results show will only focus on the Fixed Effect model.

Table (5.7)

Model (B1) the Relationship Between cash conversion cycle component and growth operating income

	Fixed effect model	Random effect model
Constant	78.81576 (0.000)*	46.77134 (0.000)*
AAI	-0.0010902 (0.844)	-0.0007424 (0.891)
ACP	-0.0677266 (0.000)*	-0.730167 (0.000)*
APP	0.0098484 (0.041)**	0.0099174 (0.036)**
SG	0.0401158 (0.000)*	0.0409238 (0.000)*
Size	-9.08934 (0.000)*	-3.25726 (0.004)**
DR	-0.225919 (0.000)*	-0.1937621 (0.000)*
G.GDP	-0.0304503 (0.015)**	-0.0328938 (0.009)*
R^2	0.3264	0.3127
F-statistic	25.13 (0.000)	169.40 (0.000)
Observations	444	444
Hausman test	21.07 (0.0018)	

*, **, ***denotes variable is significant at 1%, 5%and 10% level respectively

Table (5.8)

Model (B2) the Relationship Between cash conversion cycle and growth operating income

	Fixed effect model	Random effect model
Constant	84.7207 (0.000)*	45.38735 (0.000)*
CCC	-0.0191211 (0.000)*	-0.0206003 (0.000)*
SG	0.0314344 (0.001)*	0.0315194 (0.001)*
Size	-10.50148 (0.000)*	-3.387406 (0.005)**
DR	-0.28283 (0.000)*	-0.2489347 (0.000)*
G.GDP	-0.0141985 (0.000)*	-0.0155001 (0.252)
R^2	0.2150	0.1981
F-statistic	19.99 (0.000)	79.99 (0.000)
Observations	444	444
Hausman test	15.37 (0.0089)	

*, **, ***denotes variable is significant at 1%, 5%and 10% level respectively

It is obvious, that tables (5.7) and (5.8) show significant negative relation among the cash conversion cycle period and profitability measured by growth operating income of the firms. That is to say, the working capital management affects the GCC manufacturing firms profitability measured by growth operating income that complies with the study of Vural et al. (2012), Dong and Su (2010) And Deloof (2003), and contradicts with Nobanee (2009).

This result refer to that the firms, that have a shorter cash conversion cycle, will have higher profitability ratios measured by growth operating income, and this is due to the small size of their investment in the current or liquidity assets, (Inventory, receivables and cash accounts), on the contrary to other firms, that has a longer cash conversion cycle, and their investment size in the current assets is large.

It should be noticed that, the longer days of cash conversion cycle is an indicator to the possibility of the firm to be exposed to a cash crisis, due to the overstock of inventory out of the difficulty to be sold, or the difficulty at collecting receivables consequently.

Hence, the CCC length of time may give a misleading liquidity picture, especially if the size of the cash was low. So, it should not entirely depend on it in evaluating the firm's liquidity.

The results also show significance negative correlation, between the average collection period and growth operating income, this means shorten the period of sales collection well have increase the growth operating income. On the other hand the results show significance positive correlation, between the average payment period and growth operating income that is to say longer the firm length of payment period will increase the growth operating income and that complies with the study of Nobanee & Al Hajjar (2009).

Another results of the analysis showed that there is a significance positive correlation, between the size of the firm and growth operating income, that is to say, large firms has more profitable than small businesses. This is due to the fact that large companies are able to achieve the economic of scale in production, marketing and advertising.

At last, the results show that there is a significance negative correlation, between the firm's country GDP growth and growth operating income.

The R^2 of the two models have reached (0.3264) and (0.215) respectively.

Finally it can be said that, the H_{2a} hypothesis for the study has been rejected, on the contrary to what happened to other hypotheses.

Chapter six

Conclusions & Recommendations

6.1 introductions:

This study estimate the relationship between working capital management and profitability for a sample of 74 manufacturing firms listed on the GCC countries stock exchanges during the period between (2007-2012).; and in order to accomplish the study goal, the used model examined eight independent variables which are expected to affect the working capital management and profitability for manufacturing firm these variables are average age of inventory, average collection period, average payment period, cash conversion cycle, Sales growth, firm size, Debt ratio, growth in GDP. In addition Panel Data Analysis is used for testing the hypotheses. This chapter aims to show the most important results reached to and the recommendations that the study indicates.

6.2 Summaries of the Maine Results:

The study found a range of conclusions, which can be summarized as follows:

- The GCC manufacturing firms have a cash conversion cycle with an average of (75.54) days, and the food industry sector recorded the shortest Cash conversion cycle period amounted to (56.96) days, the longest period of Cash conversion cycle was in Basic Material industry, it with an average estimated at (100.16) days industry.
- There is no statistical significance relationship between the cash conversion cycle and the profitability measured by return on assets in the GCC manufacturing firms.

- There is a significance negative relationship, between the Cash conversion cycle and profitability measured by growth operating income.
- There is a no statistical significance relationship between profitability measured by return on assets return on assets and cash conversion cycle components.
- There is a significance positive relationship between profitability measured by growth operating income and average payment period
- There is a significance negative relationship between profitability measured by growth operating income and average collection period.
- There is a significance positive relationship between profitability wherever measured by return on assets or growth operating income and, sales growth ratio, and a significance negative relationship between profitability wherever measured by return on assets or growth operating income and Debt Ratio.
- There is a significance positive relationship between profitability measured by growth operating income and firm size.
- There is a significance negative relationship between profitability measured by growth operating income and the growth of GDP

  Hence it's concluded that working capital management is important in determining the level of profitability for firms in GCC although these firms operate in country with high level of GDP.

6.3 Recommendations

In light of previous conclusions, the study recommends the following:

1- Because the results indicate short CCC in the manufacturing firms that spread among the four GCC sectors under investigation, it's recommended for the GCC manufacturing firms to rely more on long term sources of funds rather than short term to finance their activities, especially in food industry sector. This requires more awareness to the liquidity positions and to achieve the harmony between the two financials goals (profitability and liquidity).

2- Because of positive relationship between the average payment period and the profitability measured by growth operating income, firms should be careful with regard to the lengthening of average payment period , as it might harm the firms credit reputation, and as a result decrease the profitability of the firm in the long-run.

3- For other scholars and researchers in this field, we recommend including the services sector within the study sample, to use variables that are not mentioned in this study, as well as to choose the most important determinants for the cash conversion cycle in the firm.

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Appendices

Appendix (1)

List of manufacturing firms included in the sample

CO.NU	CO. Name	listed in	Sub-Sector
1	Saudi Basic Industries Corp	Saudi Arabia	Basic Material
2	Industries Qatar Co.	Qatar	Basic Material
3	Saudi Arabian Fertilizers Co.	Saudi Arabia	Basic Material
4	Saudi Industrial Investment Group	Saudi Arabia	Basic Material
5	Saudi International Petrochemical Co.	Saudi Arabia	Basic Material
6	Boubyan Petrochemicals Co.	Kuwait	Basic Material
7	Saudi Chemical Co.	Saudi Arabia	Basic Material
8	Saudi Steel Pipes Co.	Saudi Arabia	Basic Material
9	Methanol Chemicals Company Ltd.	Saudi Arabia	Basic Material
10	Nama Chemicals Co.	Saudi Arabia	Basic Material
11	Saudi Paper Manufacturing Co.	Saudi Arabia	Basic Material
12	Saudi Vitrified Clay Pipe Co.	Saudi Arabia	Basic Material
13	Arabian Pipes Co.	Saudi Arabia	Basic Material
14	Basic Chemical Industries Co.	Saudi Arabia	Basic Material
15	National Metal Manufacturing & Casting Co.	Saudi Arabia	Basic Material
16	Alkout Industrial Projects Co.	Kuwait	Basic Material
17	Filling & Packing Material Mfg. Co.	Saudi Arabia	Basic Material
18	Al Jazeera Steel Products Co.	Oman	Basic Material
19	Oman Chlorine Co.	Oman	Basic Material
20	Kuwait Packing Materials Mfg. Co.	Kuwait	Basic Material
21	Muscat Gases Co.	Oman	Basic Material
22	Shuaiba Industrial Co.	Kuwait	Basic Material
23	Metal & Recycling Co.	Kuwait	Basic Material
24	National Aluminium Products Co.	Oman	Basic Material
25	Majan Glass Co.	Oman	Basic Material
26	Almarai Co.	Saudi Arabia	Food Industries
27	Savola Group	Saudi Arabia	Food Industries
28	Kuwait Food Co.Americana	Kuwait	Food Industries
29	Herfy Food Services Co.	Saudi Arabia	Food Industries
30	Emirates FoodStuff & Mineral Water Co.	Saudi Arabia	Food Industries
31	The Saudia Dairy and Foodstuff Co.	Saudi Arabia	Food Industries
32	National Agricultural Development Co.	Saudi Arabia	Food Industries
33	Halwani Brothers Co.	Saudi Arabia	Food Industries
34	Saudi Fisheries Co.	Saudi Arabia	Food Industries
35	Dubai Refreshments Co.	Dubai	Food Industries
36	Oman Refreshment Co. Ltd.	Oman	Food Industries
37	Al Jouf Agricultural Development Co.	Saudi Arabia	Food Industries
38	Oman Flour Mills Co.	Oman	Food Industries
39	Jazan Development Co.	Saudi Arabia	Food Industries
40	Gassim Agricultural Co.	Saudi Arabia	Food Industries

41	Widam Food Co.	Qatar	Food Industries
42	Tabouk Agricultural Development Co.	Saudi Arabia	Food Industries
43	Food Products Co.	Saudi Arabia	Food Industries
44	National Agr. Marketing Co.	Saudi Arabia	Food Industries
45	Ash Sharqiyah Development Co.	Saudi Arabia	Food Industries
46	Dhofar Cattle Feed Co.	Oman	Food Industries
47	Areej Vegetable Oils & Derivatives Co.	Oman	Food Industries
48	United Foods Co.	Dubai	Food Industries
49	Emirates Refreshments Co.	Dubai	Food Industries
50	The National Detergent Co.	Oman	Food Industries
51	Gulf Mushroom Products Co.	Oman	Food Industries
52	Sweets of Oman Co.	Oman	Food Industries
53	Delmon Poultry Co.	Bahrain	Food Industries
54	Dhofar Beverages & Foodstuff Co.	Oman	Food Industries
55	National Biscuit Industries Co.	Oman	Food Industries
56	Oman Euro Foods Industries Co.	Oman	Food Industries
57	Saudi Ceramics Co.	Saudi Arabia	Industrial
58	Ras Al Khaimah Ceramics Co.	Abu Dhabi	Industrial
59	Gulf Cable & Electrical Ind. Co.	Kuwait	Industrial
60	Oman Cables Industry Co.	Oman	Industrial
61	Al Anwar Ceramic Tiles Co.	Oman	Industrial
62	Abu Dhabi Shipbuilding Co.	Abu Dhabi	Industrial
63	National Industries Co.	Kuwait	Industrial
64	Saudi Cable Co.	Saudi Arabia	Industrial
65	The National Co. for Glass Industries	Saudi Arabia	Industrial
66	Middle East Specialized Cables Co.	Saudi Arabia	Industrial
67	Fujairah Building Industries	Abu Dhabi	Industrial
68	Kuwait Building Materials Manufacturing Co.	Kuwait	Industrial
69	Construction Materials Industries Co.	Oman	Industrial
70	Gulf Stone Co.	Oman	Industrial
71	Oman Ceramics Co.	Oman	Industrial
72	Saudi Pharmaceutical Indus. & Medical Appliances Corp	Saudi Arabia	Health Care
73	Gulf Pharmaceutical Industries	Abu Dhabi	Health Care
74	National Pharmaceutical Industries Co	Qatar	Health Care

Appendix (2)

Result of Regression Analysis of Data Related for the Model (A1)

	Fixed effect model	Random effect model
constant	6.06613 (0.660)	8.454486 (0.037)**
AAI	0.0032987 (0.587)	0.0046343 (0.403)
ACP	0.0028689 (0.729)	0.000967 (0.896)
APP	-0.0060413 (0.251)	-0.0091864 (0.061)
SG	0.035616 (0.000)*	0.0370745 (0.000)*
Size	1.514934 (0.557)	0.7966954 (0.263)
DR	-0.1966094 (0.000)*	-0.1457938 (0.000)
G.GDP	-0.0147858 (0.281)	-0.017004 (0.215)
R	0.1348	0.1307
F-statistic	8.08 (0.000)	61.16 (0.000)
observations	444	444
Hausman test	1.77 (0.9715)	

*, **, ***denote variable is significant at 1%, 5%and 10% level

Appendix (3)

Result of Regression Analysis of Data Related for Model (A2)

	Fixed effect model	Random effect model
constant	5.704739 (0.676)	8.002786 (0.048)**
CCC	0.0043306 (0.334)	0.0055556 (0.185)
SG	0.0363776 (0.000)*	0.0380915 (0.000)*
Size	1.522522 (0.553)	0.7498334 (0.292)
DR	-0.2017379 (0.000)*	-0.1557598 (0.000)*
G.GDP	-0.0143892 (0.285)	-0.0156152 (0.249)
R-sq	0.1339	0.1313
F-statistic	11.28 (0.000)	59.10 (0.000)
observations	444	444
Hausman test	0.75 (0.9804)	

*, **, ***denote variable is significant at 1%, 5%and 10% level

Appendix (4)

Result of Regression Analysis of Data Related for the Model (B1)

	Fixed effect model	Random effect model
constant	78.81576 (0.000)*	46.77134 (0.000)*
AAI	-0.677266 (0.844)	-0.0007424 (0.891)
ACP	-0.0677266 (0.000)*	0.730167 (0.000)*
APP	0.0098484 (0.041)**	0.0099174 (0.036)**
SG	0.0401158 (0.000)*	0.0409238 (0.000)*
Size	-9.08934 (0.000)*	-3.25726 (0.004)**
DR	-0.225919 (0.000)*	-0.1937621 (0.000)*
G.GDP	-0.0304503 (0.015)**	-0.0328938 (0.009)*
R	0.3264	0.3127
F-statistic	25.13 (0.000)	169.40 (0.000)
observations	444	444
Hausman test	21.07 (0.0018)	

*, **, ***denote variable is significant at 1%, 5%and 10% level

Appendix (5)

Result of Regression Analysis of Data Related for the Model (B2)

	Fixed effect model	Random effect model
constant	84.7207 (0.000)*	45.38735 (0.000)*
CCC	-0.0191211 (0.000)*	-0.0206003 (0.000)*
SG	0.0314344 (0.001)*	0.0315194 (0.001)*
Size	-10.50148 (0.000)*	-3.387406 (0.005)**
DR	-0.28283 (0.000)*	-0.2489347 (0.000)*
G.GDP	-0.0141985 (0.000)*	-0.0155001 (0.252)
R	0.2150	0.1981
F-statistic	19.99 (0.000)	79.99 (0.000)
observations	444	444
Hausman test	15.37 (0.0089)	

*, **, ***denote variable is significant at 1%, 5%and 10% level

(ملخص الدراسة)

إدراة راس المال العامل وربحية الشركات الصناعية في دول مجلس التعاون الخليجي

إعداد الطالب: أمير عاصم خضركي

إشراف الإستاذة الدكتورة:

منى ممدوح المولا

تهدف هذه الدراسة إلى استقصاء العلاقة بين إدارة راس المال العامل والربحية لـ 74 شركة صناعية مدرجة في أسواق الدول الست لمجلس التعاون الخليجي خلال الفترة بين 2007-2012 . تم استخدام مقياسين للربحية. الأول هو "العائد على الأصول" بينما الآخر هو "إجمالي الربح التشغيلي". وفي نفس السياق دورة التحويل النقدي ومكوناتها (متوسط عمر المخزون,متوسط فترة تحصيل الذمم المدينة,متوسط فترة سداد الذمم الدائنة) تم استخدامهم كمؤشرات للدلالة على فعالية إدرة رأس المال العامل. لتحقيق أهداف الدراسة استخدم التحليل الوصفي، وتحليل الارتباط الخطي المتعدد، واسلوب السلاسل الزمنية لبيانات مقطعية (Panel Data). أضهرت النتائج أن الشركات الصناعية في دول مجلس التعاون الخليجي سجلت دورة تحويل نقدي بمعدل (75.54) يوما، بينما أطول دورة تحويل نقدي سجلت في قطاع الصناعات الأساسية بمعدل (100.16) يوما وأقصر دورة تحويل نقدي سجلت في قطاع الصناعات الغذائية بمعدل (56.96) يوما. علاوة على ذلك أظهرت النتائج وجود علاقة موجبة ذات دلالة احصائية بين إدارة رأس المال العامل والربحية محسوبة بإجمالي الربح التشغيلي لهذه الشركات ، في المقابل لايوجد علاقة ذات دلالة احصائية بين دورة التحويل النقدي ومكوناتها من جهه و الربحية محسوبة بمعدل العائد على الأصول من الجهة الأخرى.

أوصت الدراسة بضرورة إهتمام المدراء بسيولة الشركات الصناعية في دول مجلس التعاون الخليجي، وبسبب العلاقة الموجبة بين فترة سداد الذمم المدينة والربحية محسوبة باجمالي الربح التشغيلي، أوصت الدراسة أن مدراء هذه الشركات عليهم ان يضعو في الحسبان أن طول فترة سداد الذمم المدينة قد يؤدي بالإضرار بالربحية على الأمد البعيد.

الكلمات المفتاحية : إدارة رأس المال العامل ، دورة التحويل النقدي ، الربيحة ، الشركات الصناعية في دول مجلس التعاون الخليجي.